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ABSTRACT

A demonstration project was undertaken to determine whether 1978 telefacsimile technology could address the needs of rural public libraries in a cost-effective manner. The TALINET design utilized local public library staff and a research/resource information staff at the University of Denver to research questions and deliver information to five demonstration sites via telefax. A total of 958 reference questions were answered during the study; only 28% of the questions were time-critical, i.e., the answers would have been less useful to end-users if telefax had not been available. However, telefacsimile was found to be almost the least costly information delivery methodology. This final report describes project participants, educational preparation for the project, and TALINET equipment, marketing, and procedures and methodology. Also provided are descriptions of the project's trial operations and demonstration phases, a cost analysis of telefacsimile use in libraries, an analysis of barriers to telefax utilization, a discussion of the principal benefits of telefax use and other study findings, and a review of future directions in library telefacsimile applications. Appendices comprise extensive project site descriptions, sample TALINET and patron interview forms, cost graphs for telefacsimile transmission operations, and public relations and other descriptive project materials. (ESR)

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TELEFAX LIBRARY INFORMATION NETWORK

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Graduate School of Librarianship and
Information Management
University of Denver
1979

IR050183

FINAL REPORT

HEW GRANT 032A-7804-P4041
OFFICE OF TELECOMMUNICATIONS POLICY
OFFICE OF THE ASSISTANT SECRETARY
FOR
PLANNING AND EVALUATION

JULY 1979

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The delivery of information to people living remote from resource centers is a major unsolved problem for the library and information world. Indeed, the limited library resources in rural areas of the country, and the difficulties experienced in identifying and acquiring information on specialized subject areas have frustrated many persons, who no longer seek information since they have little hope for the fulfillment of their needs.

The TALINET project was designed to demonstrate the use of telefacsimile to speed the delivery of information to rural libraries; and through marketing efforts and staff and resource availability, to demonstrate possible avenues of improved information delivery.

This TALINET demonstration and other such projects are essential if we as a nation are to reach the goal of providing equal access to information for all citizens.

Margaret Knox Goggin

Margaret Knox Goggin

Telefacsimile has been available since the 1920's and has been the object of numerous experiments and demonstrations, each attempting to show cost-effective usage.

Recent advances in telefacsimile technology have improved the resolution of the copy, decreased the time required to send a page of material, and simplified the operation of the equipment.

As the costs for more traditional delivery systems (mail, courier, etc.) continue to rise, telefacsimile is becoming a very competitive alternative.

The TALINET Project was designed to utilize narrow band (telephone) technology and even with the built-in costs inherent in narrow band communications, telefacsimile was cost-effective and competitive in most TALINET situations.

As satellites, fiber optics, and other newer communication technologies improve and become commonplace, telefacsimile is destined to become an increasingly important and cost-effective methodology for communications and information transfer.

William E. Rapp

William E. Rapp
Project Director

ACKNOWLEDGEMENTS

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1. OVERVIEW

TALINET was one of eight telecommunications grants funded by the Office of Telecommunications Policy, the Office of the Assistant Secretary for Planning and Evaluation of HEW. This series of grants was designed to demonstrate and evaluate the uses of nonbroadcast (narrow band) telecommunication technology in the delivery of public services. TALINET was the only project in this series which had a library orientation.

Background

The American Library Association in the September/October 1978 Library Technology Reports[1] details a number of past library telefax experiments. This issue also describes in some detail current telefax equipment and several pieces projected for the near future which could significantly affect the library market. The first practical library telefax experiment described in this report was conducted during the 1920's. During World War II there were several significant telefax experiments. In 1948 a telefax demonstration was conducted at the Library of Congress and in the late 1960's a number of telefax experiments were conducted which ranged in length from thirty days to fifteen months.

Librarians involved in these previous experiments were generally dissatisfied with the results. Four main areas of inadequacy for library use were identified. They were:

1. Output quality (resolution)
2. Reliability of the equipment
3. High costs
4. Uncertain need

TALINET was an ambitious demonstration project undertaken by the Graduate School of Librarianship and Information Management of the University of Denver to determine whether 1978 telefacsimile technology can address public library needs in a cost-effective manner.

The Goals of TALINET

The major goals of TALINET were to utilize telecommunications to provide rapid answers to information needs of persons living remote from extensive information resources. Site libraries were picked in developing towns located in a five-state area; the TALINET design utilized the local library staffs of the libraries and a research/resource information staff to research the site questions and deliver the information to the site via telefax. The purpose was to test telefax, to ascertain the information needs of remote communities, to identify the need for speed, the cost-effectiveness and the public acceptance of a telefax service.

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[1] ALA Library Technology Reports, September/October 1978,14:8

The goals of TALINET led to the testing of a number of hypotheses. These hypotheses are:

1. That public libraries, especially those located in remote areas impacted by developmental explosions do not have readily available resources to meet all patrons' information needs;

2. That with a needs assessment (community analysis) and a marketing effort more community information needs will be generated than are currently being met by the library;

3. That some information needs are time-critical and the information is necessary to making the informed decisions which often impact total communities and small groups as well as individuals;

4. That telefacsimile can be a means of providing library information services rapidly, efficiently and in a cost effective manner.

5. That library personnel currently employed in reference work can master and use telefacsimile equipment efficiently and with a minimum of training;

6. That the TALINET Project would provide an opportunity for sixth-year post-Master's degree library students to have a hands-on technological experience that would enhance their academic program.

At the time that the Graduate School was responding to the HEW Request for a Proposal (October 1977), the Federal Library Network Prototype Project (FLNPP) was in the final planning stages. The FLNPP included twelve Federal and three non-Federal libraries located coast to coast. The hub of the network is located at the Department of Commerce, National Oceanic and Atmospheric Administration (NOAA) library in Boulder, Colorado, with the NOAA Library Director serving as the Director of the FLNPP.

FLNPP Rationale

In 1976 a group of Federal libraries which serve the research communities in environment and energy and which have on-line computerized bibliographic retrieval sources identified these common operating problems:

1. A widening gap between their ability to retrieve citations and to obtain the actual documents desired;

2. An annual inflation rate of 10-20 percent in the cost of books and journals;

3. A proliferation of on-line data bases requiring subject expertise in a wide variety of disciplines;

4. Staff and space shortages;

5. Curtailment of travel funds for professional meetings;

6. Inability to train staff fast enough or in sufficient depth to cope with the impact of on-line retrieval services;

8. Mail service becoming increasingly slow, unpredictable and costly;

9. An increase in interlibrary loan activity, resulting in inaccessibility of items loaned to satisfy other requests;

10. Budget curtailments and inability to change funds from one budget category to another to respond to changing service loads.

A series of meetings was held between December 1976 and June 1977 in the Washington D.C. area during which these problems and alternative solutions were discussed. Developing better means of sharing resources among the libraries became the crucial strategy for solving all of the above problems. This strategy henceforth will be referred to as document delivery with the human interaction among subject specialists and other reference and interlibrary personnel implied in effecting the ultimate tangible product. The product is the relevant document or information delivered into the hands of the requestor in a timely manner. The group formulated these problem-solving objectives:

1. To improve the relevance and timeliness of document delivery;

2. To improve access to other libraries, mitigating the handicap of distance specifically for resource sharing;

3. To lower operating costs or at least offset inflation by shared use of the libraries' collections and better use of the talents of local staff, especially through shared use of subject, language, and data processing expertise;

4. To practice more effective use of the postal system and other transportation-oriented delivery systems such as local courier, Federal Express, etc;

5. To develop procedures for creative compliance with the 1976 Copyright Law without sacrifice of service to the research community;

6. To coordinate library services more closely with data center services;

7. To improve staff training opportunities, especially with regard to on-line retrieval systems;

8. To improve local inventory control (file integrity);

9. To be able to respond rapidly to changes in agency mission;

10. To extend full service to the public, thereby making a more direct contribution to the solution of the nation's problems and to the ideal of providing equal access to library service for all citizens;

11. By meeting the above objectives to provide a prototype for a Federal library network which could in turn become the nucleus of the national library network.

The rapid changes in telecommunications technology have resulted in equipment which, applied to the document delivery problem, might improve the service capabilities of libraries. If it were possible for a user requesting a publication not available locally to sample it at another library visually, prior to its being completely photocopied and mailed or prior to the actual volume itself being mailed, the relevant information could be quickly isolated. Either the full publication could then be mailed or the one or two pages of actual relevance could be telefaxed. Interlibrary loan as currently practiced is an exceedingly inefficient means of document delivery, in that publications are chosen from citations and, to a lesser degree, from abstracts without the actual ability of the user to peruse them prior to shipment. Therefore, many useless information packages are being processed and shipped and returned, during which time more relevant information may pass unnoticed on the shelves. The U.S. Postal System is finding it more and more difficult to cope with its service load, but the load itself is a misuse of the system. It is like transporting seven passengers to a meeting in a car designed for five when only two should have made the trip in the first place and the other five teleconferenced.

To provide this diagnostic and screening capability to reference and interlibrary loan services among libraries, the group began investigating equipment. The group witnessed demonstrations of slow scan television and telefacsimile to determine what mass produced "off-the-shelf" equipment might be experimented with in order to form a small but highly research-oriented network. After investigating both the costs of the equipment and the possibilities of obtaining grant funding, it was decided that each participant would commit sufficient operating funds to lease either slow scan TV or rapid telefacsimile or both for six months and would pay an administrative overhead charge to the Federal Library Committee for monitoring the project and for seeking grant funding to continue it after the six months initial phase was concluded. The Library of Congress agreed to handle the equipment procurement. The Environmental Research Laboratories of NOAA offered twenty-five percent of their Chief of Library Services' time to chair the project.

As the FLNP Project developed, the following libraries became part of the experiment:

Federal

Argonne National Laboratory Library, Argonne, IL
Lawrence Berkeley Laboratory, Berkeley, CA
NOAA Library, Boulder, CO
NOAA Library, Miami, FL
NOAA Library, Rockville, MD
EPA Library, Cincinnati, OH

EPA Library, Triangle Park, NC
Coastal Engineering Research Center Library, Ft. Belvoir, VA
Brookhaven National Laboratory, Upton, NY
Engineers Waterways Experiment Station, Vicksburg, MS
Corps of Engineers, Washington, D.C.
National Bureau of Standards, Washington, D.C.

Nonfederal

Maine State Library, Augusta, ME
University of Maine, Orono, ME
Portland, Maine Public Library

The FLNPP, in preparation for conducting its project, performed an evaluation of current telefax equipment and made a decision to utilize: 1) Qwip, which is a low cost telefacsimile machine that can transmit an 8½x11-inch page in four or six minutes; 2) Rapifax, which is more expensive but can transmit an 8½x11-inch page at speeds of 35, 60, or 90 seconds, and has machine-to-machine capability and an automatic feed feature; and 3) Colorado Video (CVI) Slow Scan Television equipment which provided 42 second per page transmission from the sending site to a CRT screen (no hard copy capability).

It was felt that these three pieces of equipment would provide relevant data as to trade-offs of lease and/or purchase price, operational costs which include supplies and telephone line charges, and personnel costs required to send and receive. As discussions were carried on between NOAA and the Graduate School of Librarianship and Information Management it became apparent that there was considerable commonality and that a merging of the projects could be operationally and cost beneficial to both entities. The TALINET Project therefore was designed to use the same equipment, to employ the resources of the fifteen FLNPP libraries as a resource base and to utilize the NOAA library as a hands-on reference and telecommunications training station for the five Graduate Research Assistants to be involved in the operation of the TALINET project. As FLNPP was already a reality the TALINET project proposal was developed so that it would start concurrently with FLNPP Phase II. The FLNPP Phase I was understood to be a six-month trial period to get all equipment, FLNPP staff, and procedures operational and running smoothly.

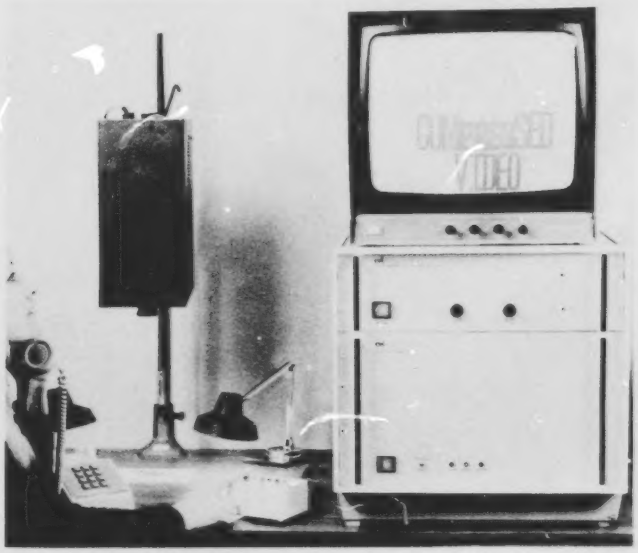
TALINET Rationale

It is the philosophy of the Graduate School of Librarianship and Information Management of the University of Denver that faculty and staff should be knowledgeable of technological advancements that could affect future library operations. In carrying this philosophy into action the Graduate School of Librarianship and Information Management has engaged in experimentation and technological development, thereby providing its graduate students with an opportunity to engage in meaningful research to extend the body of knowledge concerning library science and information management. This research also provides the school with an opportunity to evaluate new information technologies and techniques and introduce the most meaningful elements into the graduate curriculum.

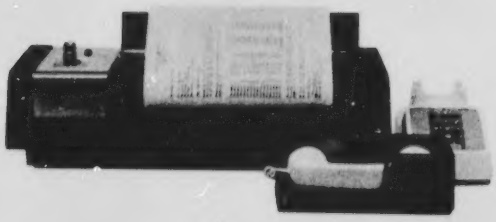
In keeping with this philosophy, in 1973 the Graduate School of Librarianship and Information Management engaged in satellite telecommunications experiments designed for the NASA Communications Technology Satellite (CTS). Under an Office of Education grant, the Graduate School developed for satellite distribution a series of video tapes dealing with library staff training. The Graduate School was named as an experimenter on the CTS and developed many of the elements which later became a part of TALINET.

When the Request for a Proposal was received from HEW's Office of Telecommunications Policy for narrow band experimentation, it coincided with ongoing discussions between the Graduate School of Librarianship and Information Management (GSLIM) and FLNPP, and matched the Graduate School's interests and abilities to further experiment with telecommunications in the solution of library problems.

As the planning for TALINET developed it was decided to utilize the same three pieces of telecommunications equipment chosen by FLNPP, thus making the fifteen FLNPP libraries, the five TALINET libraries and the TALINET office all equipment-compatible. FLNPP had also contracted for research on the development of data-gathering forms and it was determined that these forms, with minor modifications, were applicable to TALINET research needs thereby making the total body of telefax transaction (FLNPP and TALINET) information available for analysis. The quid-pro-quo tradeoffs for FLNPP to become involved with TALINET were threefold: 1) The joining of TALINET with FLNPP provided FLNPP with information regarding five public libraries' reference needs outside of the more narrow technical/scientific reference exchanges ordinarily made among FLNPP libraries: 2) FLNPP was assisted in fulfilling its public service mission which is a responsibility recognized by most Federal libraries and 3) in exchange for FLNPP reference services, computer based reference searches, NOAA training, and FLNPP/TALINET hub services at NOAA, a portion of the FLNPP equipment charges were underwritten by TALINET.



Colorado Video, Inc., Slow Scan Television Equipment.



Qwip 1200

Rapifax 100

Educational Component

It has been the practice of the Graduate School of Librarianship and Information Management to incorporate an educational component in experimental and demonstration projects wherever feasible. TALINET was designed to utilize five post-Master's students as Graduate Research Assistants (GRAs).

The GRAs were scheduled for an individualized academic program which would terminate at the end of four quarters of work with a Sixth-Year Certificate of Advanced Studies. The TALINET experiences were designed to provide:

1. Participation in the Community Analysis Workshop, pairing with a TALINET site librarian, and involvement in an actual community analysis within the site community;

2. Instruction in computer-based reference on campus, followed by four weeks of additional computerized reference training at the NOAA library; this training was to be followed by seven months of experience in conducting computer searching of actual reference requests submitted by the TALINET site libraries;

3. Redesign or rescheduling of course work to provide reference background information which would enhance the GRAs' ability to respond to reference questions;

4. A four-week training internship at NOAA to become acquainted with Federal Library Network holdings and procedures for accessing these holdings;

5. Site visits to the site communities (4 two-to-four day visits) to meet with site library staffs, patrons, community leaders, business and industry representatives, neighboring library staffs, and state and system librarians;

6. Experience with telecommunications equipment, (telefacsimile, computer terminals, slow scan television, the Federal Telecommunications System, etc.);

7. Development of a marketing and public relations plan for each project site;

8. Development of a site profile and statistical site information relative to the demonstration;

9. Participation in the development of the final Project report to be submitted to HEW.

In April a nationwide solicitation for the five GRA positions was made. The five GRAs were selected on a competitive basis with consideration given to previous work experience, previous academic records, geographic locations, and demonstrated desire to participate in the Project.

Community Analysis and Marketing Component

One of the component parts of the TALINET proposal was provision for each site community to perform a community analysis and to utilize information derived from the analysis to develop a marketing effort from which both the library and TALINET could profit.

Each site was provided an opportunity for a staff member to attend a Community Analysis Workshop along with the Graduate Research Assistant assigned to the site. The Community Analysis Institute of the Graduate School of Librarianship and Information Management provided a structured survey methodology and the means for analyzing the data. A well conducted survey identifies served, under-served, and unserved public sectors, and provides information which can assist library management in developing services, acquisitions, work schedules, budgets and marketing strategies. The community analysis process takes approximately one year; therefore the initial community analysis activities became most important to the TALINET project and these early activities became the basis for the marketing effort.

Configuration of the TALINET Demonstration

As all of the elements of TALINET were developed and implemented, the total configuration consisted of the following:

1. An administrative unit consisting of the Principal Investigator, a Co-Director with telecommunications experience, a Co-Director with library experience, and a secretary;

2. The primary research group consisting of five Graduate Research Assistants who participated one-half time on TALINET and one-half time on a Sixth-year post-Master's program. The GRAs had received training in community analysis, computer based reference and a number of courses selected to enhance the individual academic program. They had each participated in a four-week internship at NOAA to practice on-line computer data base searching and to learn how to access Federal Library resources. They had each made a site visit to their assigned library, met and worked with the staff and assisted with a first marketing effort. They were trained in the use of the telecommunications equipment, had practiced with their assigned site by researching actual questions and utilized the forms which were a part of the research design;

3. The National Oceanic and Atmospheric Administration Library located at Boulder (NOAA) serving as the hub of the Federal Library Network Prototype Project (FLNPP) and prepared to add the five TALINET sites to its operation. NOAA had provided an intensive internship for the GRAs, had provided information on use of forms and equipment then in use in the FLNPP. NOAA had assigned a full-time staff member to be the key equipment operator and to assume responsibility for all incoming and outgoing telefacsimile traffic.

4. Five experimental/demonstration sites, each of which had signed a "Memorandum of Understanding" which delineated the responsibilities of the site, the TALINET staff and NOAA. Each site had appointed a site coordinator and assistant site coordinator. The site coordinator had participated with the assigned GRA in a Community Analysis Institute. Each library had started publicizing the TALINET Project in the site community and with other librarians within a 50-mile radius. The two site coordinators had trained with the telecommunications equipment and practiced sending reference questions utilizing the project forms and the equipment.

Site Selection

TALINET was designed to provide a "real world" library demonstration. It was felt that the demonstration sites should represent small-to-medium size libraries in geographical areas where there was considerable growth and/or impact from energy-environmental developments. It was envisioned that the libraries would utilize their regular reference staff personnel in the demonstration and that the Project would, as nearly as possible, demonstrate how any library similarly situated and organized could add a telefacsimile capability to the current reference delivery system.

The site libraries were selected with input from the State Libraries of each state and by agreement with the library Director and the governing Board of each library.

In general the site libraries had the following characteristics:

1. Were located in towns remote from the State Library;

2. Were located in areas where there was growth activity;

3. Had staff sufficient to handle an increased reference load, to participate in community analysis and marketing, and to meet the TALINET demonstration requirements;

4. Had an administration and governing Board who were flexible and committed to the demonstration nature of the Project;

5. Represented various configurations of staffing and internal resource capabilities;

6. Had an academic library and/or state systems resources within the community as an information user and/or provider;

Site Descriptions

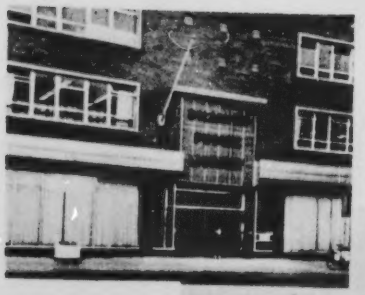
The five TALINET demonstration sites which were selected provided a five state mini-network of public libraries. They were diverse in size, budgets, staffing, internal reference capabilities, external resources and their ability to deliver reference services. The following are brief descriptions of the demonstration site libraries and communities. A full description of each site may be found in Appendix A.

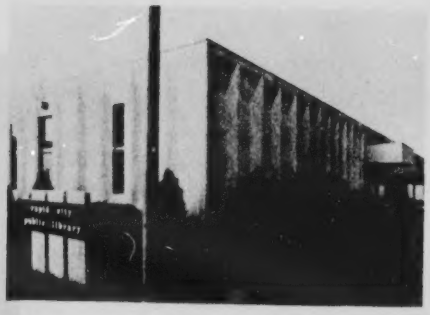
Durango, Colorado

Durango is located in the southwest corner of Colorado, in an area with natural gas, oil, coal, uranium and geothermal energy resources. The development of these resources is still in its early stages with the town feeling little impact as yet from persons or companies moving into the town for energy related activities. There is a large tourist and ski industry and considerable activity related to education, agriculture, lumbering and retail trade. The library, organized in 1906, serves the city of Durango and La Plata County, an area with a total population of 23,900, up 24.5 percent since 1970. The South West Colorado Regional Library Service System headquarters is located across the street from the library and is a developing resource to the Durango Public Library. Fort Lewis College, a state supported four-year arts and sciences college, is located in Durango and its library works with the Durango Public Library on an informal basis to share resources. The Durango Public Library has approximately 50,000 volumes and a staff of thirteen full time employees. At the present time only the Director and Cataloger have formal library education.

In July of 1978 the former Director of the library resigned; therefore this site library began the TALINET Project with many internal changes taking place.

PROJECT LIBRARIES





Rapid City Public Library
Rapid City, South Dakota

Natrona County
Public Library
Casper, Wyoming

NOAA
Boulder, Colorado

Durango Public Library
Durango, Colorado

Dodge City Public Library
Dodge City, Kansas

Dodge City, Kansas

The Dodge City Public Library serves Dodge City and Ford County with an estimated population of 24,000 in their service area, up from 22,587 in 1970. Major industries are concerned with farm business and the cattle industry, supplying equipment, seed, feed, consumer goods and an active market for farm goods and cattle. Currently a large meat processing plant is being built which, when fully operational, could double the work force in Dodge City.

The library was organized in 1905 and was housed downtown in a Carnegie building. In the mid-sixties the library was relocated in an attractive building two blocks from the original location. Space requirements, heavy library usage and limited parking have prompted another proposed move to larger quarters downtown. The staff consists of five professional librarians, four clerical employees and several CETA and Green Thumb workers.

The Southwest Kansas Library System shares quarters with the Dodge City Public Library. This results in a very close and cooperative working relationship. The libraries at Dodge City Community College and St. Mary's of the Plains College informally share resources with the Dodge City Public Library.

Billings, Montana

Billings, Montana, is a city of 80,000, up from a population of 61,581 in 1970. It is the largest city in a 500-mile radius and serves as a distribution, retail, medical, cultural, and entertainment center for over 250,000 people. Billings is an industrial center with food processing and oil refining being the leading commercial activities. Manufacturing of wood, wool, concrete, metal, clay and glass products are also important industries.

The Parmly Billings Library was founded in 1902. The original building is now the home of the Western Heritage Center, dedicated to the preservation of Western artifacts and paintings. The present library is located on three floors of a former furniture store building and has spacious, attractively remodeled accommodations. The Parmly Billings Library is a member and the headquarters for the South Central Federation of Libraries which covers a six county area.

Parmly Billings Library has a staff of 27½ full-time employees with 10 having professional library degrees.

The Director and staff have been very service-oriented and the newspapers and media provide a great deal of coverage of library activities. The Parmly Billings Library is heavily utilized by business, government, and civic organizations for library services and the library also serves as a community meeting center with meeting rooms constantly in demand.

In addition to its resources through the Montana Library System, the Parmly Billings Library also shares materials with the Eastern Montana College and Rocky Mountain College through interlibrary loans.

Rapid City, South Dakota

Rapid City is located near the western border of South Dakota and is the "Gateway to the Black Hills and the Mount Rushmore Memorial." The current population is estimated at 51,500, up from 43,836 in the 1970 census. Rapid City is listed in a commercial study for the Chamber of Commerce as the third fastest growing area in the United States.

The chief industry of Rapid City is agriculture, followed by tourism. Other major sectors of the economy are military (Ellsworth Air Force Base), manufacturing, the cattle and sheep industry, quarrying and mining.

The Rapid City Public Library is fairly new (1972), modern in design and functional. The library started as a reading room in 1879 and has therefore served the community for 100 years. The library has a full-time staff of 10. Six of the staff have professional library degrees. The library staff is community- and service-oriented and there is considerable good feeling and good will toward the library and staff. One of the library trustees attended the Community Analysis Workshop along with the library staff member. This is generally indicative of the interest in the library operation. The South Dakota School of Mines and Technology and the National College of Business have libraries which cooperate in the sharing of materials.

Casper, Wyoming

Casper is the county seat of Natrona County which encompasses 5,342 square miles. Casper has a population of 65,000 and is the hub of Wyoming's energy industries. The exploration, development and refining of oil is Casper's single largest industry with gas production a close second. Three of Wyoming's nine refineries are in Casper. Ninety-five percent of the state's uranium reserves are within 100 miles of Casper. Coal mining is also becoming an increasingly important industry. Other industries of importance are tourism, manufacturing, construction and wholesale and retail trade.

The Natrona County Library was founded in 1902 by the local chapter of the Women's Christian Temperance Union. In 1910, after a period of financial and political difficulty, a Carnegie library was completed. In 1974 a new building was added to the existing Carnegie building.

The Natrona County Library is governed by a five-member Board appointed by the County Commissioners. The library has a staff of 25, of which 6½ positions are staffed by professionals.

The library has been characterized as being service-oriented with many service innovations developed over the years. The library owns and operates a community television station.

Because of the long-time activity in oil and gas within the region the reference department and reference staff have reached a high level of competency in answering energy inquiries. The energy questions originating from Natrona County during the demonstration were therefore quite complex, as the more general energy questions could be answered by the reference staff.

Overview of Conclusions

The TALINET demonstration was carried out during a Trial Operations period from September 11, 1978, through December 20, 1978, and a Demonstration period from January 4, 1979, through March 31, 1979. During this period the TALINET staff fielded, researched, and answered 958 reference questions from the five sites. Mainly these questions represented those which could not be answered by the site reference staffs using local resources. These reference questions tended to become progressively more sophisticated as the site librarians became more adept at accessing local resources and forwarding only the "no hit" requests to TALINET.

The site reference staffs were able to master the telefacsimile equipment with a minimum of effort. The equipment was generally dependable but a marked preference was shown by site personnel for the more expensive, machine-to-machine piece of equipment (Rapifax). In general, as many as 28% of the questions submitted to TALINET were time-critical to the point that the answers would have been less useful to the end-users if telefax were not available. In these instances, many users indicated that paying the cost of the transaction would have been reasonable in light of the results. On the other hand, the majority of the questions handled by telefax could have been handled by conventional means (mail) and still been useful to the user. In general then, the costs of telefacsimile delivery, as used in TALINET, could not be described as cost-effective unless the reference material is time-critical to a point where the time differential between mail, express mail, or courier makes the cost differential worthwhile to the user. A major point which should be mentioned in this section and which will be reported in detail in the "Future Directions" section is that telefacsimile as demonstrated in TALINET, is close to being the least costly delivery methodology. Any breakthrough in: telefax equipment such as a 2-minute facsimile over the 4-minute facsimile; reduction in telephone charges; utilization of satellites; or development of an entirely new delivery system such as a National Periodicals Center, could tip the scales in favor of telefacsimile as a cost-effective methodology to deliver all or a large part of the information flow to and from libraries.

2. PARTICIPANTS

Concurrent with the selection of the five demonstration sites, advertising was begun to fill the five graduate research assistant (GRA) positions and a library-trained Co-Director position. The Project advertised nationwide for candidates for these positions. The requirements were: a Master's Degree in Library Science; a minimum of three years of library experience; acceptance into the Sixth-year Post Master's Library Program; and a desire to become a part of an experimental/demonstration library telecommunications project. There were six applicants for the Co-Director's position and 16 applicants for the five GRA positions. The selection process gave consideration to experience, past academic record, and the diversity of geographical location of the candidates.

The positions provided for an academic program of 45 graduate hours to be accomplished over four quarters with 20 hours per week to be devoted to the TALINET Research and Demonstration Project. The staff was given considerable latitude in developing their individual academic programs and several courses were designed or rescheduled to provide supporting background experiences for the TALINET Project. The TALINET staff began its combined work effort with a Community Analysis Workshop held the last week of May 1978.

Each demonstration site was asked to select two staff members to become the TALINET site coordinator and the assistant site coordinator. It was to become the duty of the site coordinator and assistant to be the chief correspondents between the site library, the TALINET staff, and the NOAA/FLNPP staff. The site coordinator was expected to be the chief intake person for TALINET reference questions, the coordinator of the site community analysis, and the site person responsible for record keeping, marketing, and working with the assigned GRA. The site coordinators' previous experience levels ranged from a senior research librarian to a beginning library employee with no formal library training. The site coordinators also attended the Community Analysis Workshop in late May and each was paired with a GRA at the workshop. The assignment of each GRA to a site and the pairing with the site coordinators was done on the basis of GRA references, site visits to the demonstration sites by the Principal Investigator and the telecommunications Co-Director, and interviews with the GRAs and site coordinators.

The NOAA/FLNPP staff were assigned to work with TALINET by the NOAA library Director, who was also the FLNPP Director and a member of the TALINET Advisory Committee.

One NOAA staff member served full-time as the telecommunications technician for all FLNPP and TALINET transactions. A cadre of senior NOAA research librarians and computer-based reference staff were made available to train the TALINET staff and to serve as a resource throughout the Project.

The TALINET Advisory Committee was also organized. This committee consisted of the Director of NOAA/FLNPP, a state librarian, a site library director, an information specialist at the Solar Energy Research Institute, an assistant director of a state university library, the Director of a regional bibliographic center, and the Dean of the Graduate School of Librarianship and Information Management as Chairman.

TALINET GRADUATE RESEARCH ASSISTANTS

Joyce Sethre

Maureen Crocker

Cindy Kraybill

James E Boyce II
Assistant Director

Eric Halverson

Pete Daniels

There were several changes in staffing during the life of the Project. During July of 1978 the Director of the Durango Public Library resigned and a new Director was appointed by the Board of Trustees. In March of 1979, the Director of the Parmly Billings Library resigned and was also replaced. The Durango change came early enough that the new Director could implement the TALINET Project, and the Billings change came after the Demonstration period had ended.

Within the Project, the library-trained Co-Director resigned in August of 1978 for personal reasons. A Graduate Research Assistant was made Assistant Director and an incoming Sixth-year Post Master's student with community analysis training and extensive reference skills was made a Graduate Research Assistant. This change was made without loss of momentum to the Project.

At the end of the Demonstration period, one of the GRAs terminated both the academic program and the TALINET affiliation. This position was not filled since site interaction was essentially over and the data analyses could be adequately covered by the remaining staff.

Throughout the TALINET Project the participants functioned in team fashion. Site personnel, TALINET administrative staff, GRAs, NOAA staff, and Advisory Committee members, all contributed to make TALINET a meaningful demonstration.

3. EDUCATIONAL PREPARATION

TALINET was a continual educational process. Educational activities took place on the Denver University campus, at the Community Analysis Workshop, at NOAA, at each of the sites, at other FLNPP libraries, at libraries surrounding the sites, within state library systems and State Libraries and at the Office of Telecommunications Policy of H.E.W.

Educational Programs at the Graduate School of Librarianship and Information Management

TALINET was designed to utilize the services of the five Graduate Research Assistants who were enrolled in the Sixth-year post-Master's academic program, and would concurrently participate in the extensive TALINET field demonstration project. The academic program was organized to provide each student with library education course work and a cognate field of study as desired. The curricular calendar was altered to provide background material for the GRAs to better prepare themselves for the TALINET experience. Two courses, Environmental Resources and Marketing of Libraries and Information Services, were provided with special reference to TALINET. Another course which was taken by all GRAs was Computer Based Reference.

Community Analysis Workshop

The community analysis training was conducted by the Community Analysis Research Institute of the University of Denver, Graduate School of Librarianship and Information Management. At this workshop participants were instructed in the use of a technique for analyzing the makeup of a community, assessing its informational needs pattern, assessing the community's information resources and the correlation with the needs patterns, designing strategies for improving services to information users and addressing the unmet needs.

Each site coordinator returned to his/her community after the workshop to initiate the community analysis locally. Community analysis is a relatively long process normally involving a period of one year. However, the basic analysis steps were considered to be important to TALINET in identifying underserved or unserved populations in each demonstration site. The early steps accomplished a demographic analysis with the most recent data available, an examination of telephone directories and local newspapers to identify large employment or activity segments of the population and a series of "walkarounds"--physical examinations of each community to identify characteristics not apparent in abstracted data. The GRA assigned to each site performed the demographic analysis activities (except the walkaround) independently in order to form an impression of the community prior to the first site visit.

The Community Analysis Director and Assistant Director visited four of the five demonstration sites, by invitation, to explain the process and benefits to all site library staff members and to librarians from surrounding libraries. TALINET therefore provided the vehicle for the five site libraries and a number of other libraries to perform a comprehensive self-examination of the quality of service being provided to the communities being served.

NOAA

The staff at the National Oceanic and Atmospheric Administration (NOAA) Library located in Boulder, Colorado provided excellent on-the-job education and training throughout the Project. Following the on-campus Computer Based Reference course, the GRAs participated in a four-week internship at NOAA where they:

1. Performed computer searches on practice questions forwarded by the demonstration sites;

2. Became familiar with the NOAA library resources;

3. Became familiar with the use of the Federal Telecommunications System (FTS) and how to access the resources of the other 14 FLNPP libraries;

4. Became familiar with the protocol in accessing other local information resources, such as the University of Colorado's Norlin Library;

5. Developed a protocol for handling TALINET questions and utilized the forms for recording Project data;

6. Developed a strategy for handling the volume, priorities, and variety of anticipated site requests.

FLNPP Libraries

Even though the volume of questions which might have been answered through the FLNPP network did not materialize, the TALINET/FLNPP relationship was a two-way learning experience.

TALINET staff and site librarians were exposed for the first time to the extensive resources held in some of the participating FLNPP libraries, and became aware of the problems in locating and accessing these information materials. NOAA and the other FLNPP libraries had an opportunity to learn of the variety and the time-critical information needs of patrons in smaller, remote communities. It became apparent that information is truly a national resource and smaller, more remote communities have a need to access this resource.

State Libraries and Library Systems

In the process of providing information and access routes, the staffs of the state libraries and participating library systems learned of new local needs, new resources and new accesses. TALINET demonstrated that there are information needs which are time-critical and which cannot be met adequately through present delivery systems. In turn, the site libraries learned that there are other resources available than those normally used, and that telefacsimile is an improvement over present delivery systems.

The Office of Telecommunications Policy

As a result of two site visits by HEW Office of Telecommunications Policy (OTP)--evaluations and the findings of TALINET, the information needs of remote communities became much clearer. There is a need for information networking beyond the local libraries and often beyond the in-state resources. The importance of information to the decision-making segments of the population was a learning process for TALINET staff, information suppliers, and the OTP. The learning that took place around the TALINET project is very important to future telecommunication policy decisions.

Summary

As the Project progressed, learning took place at each component level. Site personnel became more adept at focusing on the precise information desired by the patron, and better at answering reference questions with their own local resources. The GRAs became more proficient at locating information quickly and at analyzing the depth of inquiry desired. All participants became more expert at using the telefacsimile equipment to request, retrieve, package, and deliver information.

Evaluation of Graduate Research Assistant Educational Experiences

The Graduate School of Librarianship and Information Management of the University of Denver has offered an Advanced Studies Program since 1970 for librarians with a Master's Degree in Librarianship who have been working in positions within the library field for a minimum of three years. The goal of the program is to enable such librarians to further develop those skills, abilities and competencies which they perceive are needed to enable them to channel their career development. The academic year's plan is flexible enough for each student to elect a cognate area of study related to, but outside librarianship, and to devote approximately one-half of his/her required total number of hours to that field and approximately half to library and information management.

For the TALINET Project it was envisioned that the Advanced Studies Program and the experimental telefax demonstration could be coupled, and that the combination of study and experimentation and demonstration would fulfill the following goals:

a. Provision of educational experiences not available in the regular classroom;

b. Reinforcement of learning by providing a framework of actual work in which to "try out" classroom knowledge;

c. Reinforcement of learning by providing a work experience to be brought into the classroom as a "case" against which to develop knowledge; and

d. Provision of a framework within which regular library school courses, cognate courses, and Project work might readily be combined into a fully-integrated educational program.

The planned combination of study and developmental experimentation in a field situation is not unique, for it was used previously with much success at the University of Denver's Graduate School of Librarianship in a program to educate school library media center district supervisors. The

Knapp School Library/Media Project combined the Advanced Studies Program with a case study method, in which each student selected a school district and developed for that district a total media program. While classes were taken with other students, each student worked independently on one district and the resulting project was an individual activity with the site as the observable phenomenon. The TALINET Project, on the other hand, while allowing each student to develop an individual site, required that all participants work together on a common project, implementing the goals of the project through the sites selected. The Project parameters were more narrowly defined and the sites were selected before the students were recruited and brought into the program. The site library became a working part of the Project, requiring students to cope with the changing reactions and conditions of the libraries in the five communities.

Each student was recruited for TALINET and the Advanced Studies Program at the same time and therefore the goals and objectives of TALINET as described in the grant proposal were known to each one at the time of acceptance. Each student wrote a statement of his/her goals for the educational program for which he/she had applied at that same time.

The academic offerings for the Advanced Studies Program included a variety of courses in the graduate calendar at the Graduate School of Librarianship and Information Management, as well as three advanced seminars required of all. In addition, the faculty developed special courses to be offered for the first time during the Project, anticipating that the TALINET students might have a need to study in these areas in order to perform better in the TALINET Project, or might be stimulated by their TALINET experiences to want to study in these areas. The memo of June 16, 1978, (see Appendix E) describes some of these special courses, which were increased by the addition of "Measurement and Evaluation" and "Computer Programming Concepts" during the Spring Quarter.

Upon declaring their cognate area, students met with graduate advisors from those areas and with their Graduate School of Librarianship and Information Management advisors to plan their course selections. Most of the TALINET students selected Business or Public Administration as their cognate field of study.

Students and faculty evaluated the academic program for the TALINET Project in separate endeavors. Both groups reached certain common conclusions. Both groups believed that the TALINET Project enabled students to gain an academic credential by financing their schooling. In addition to the financial assistance, the nature of the demonstration combining telecommunications with rural public libraries, using community analysis as a tool, was an important factor in the decision to participate for most of the students. This might lead one to suggest that the subject for experimentation is a critical factor in recruiting students to this combination of study and demonstration.

Both students and faculty concluded that the combined study/demonstration offers opportunities for growth and development of the participants, those that teach them, and the library staffs that participate in the Project.

Strengths of the program, as perceived by the students at its conclusion, appeared to be generally those classes and experiences related to the acquisition of specific skills and competencies. Thus, the tools acquired through the Computer-Based Reference course, the Community Analysis Workshop, and the training component at NOAA were consistently rated as valuable by most of the

students. Along with the skills and competencies, students rated the introduction to and exploration of their cognate area as a positive aspect of the academic program. Some identified the involvement in a variety of library experiences, backed up by instruction and course content, as the major advantage of the program.

The faculty believed the opportunity to interrelate the experiences in the field situation to the theories and principles of librarianship discussed in the classroom could be the most lasting benefit of the program. They judged the degree of success in accomplishing this end to be proportional to the degree of success in recruiting and selecting students with successful work experience and commitment to career development.

Problems experienced or perceived in coupling study and demonstration activity were related to the conflicting demands on time, the distance between the University of Denver campus and the NOAA base for the work assignments, the difficulty in scheduling site visits during the academic program, and the difficulty in arranging all the course offerings prior to the utilization of that knowledge in the TALINET work.

Areas of improvement which students and faculty felt would enhance the educational/field experience included the required seminars, the advising process, faculty-project interaction, the recruitment/selection process, and coordination between the field and classroom experiences.

In summary, the academic program combining the demonstration project with academic study was viewed as having strengths and weaknesses both by the faculty and by the student participants. From the perspective of the total program, the general consensus was a positive one. As one student wrote, "On the whole, the experience has been a particularly valuable and positive one as I have grown personally and professionally during the year."--"The coupling of Project and formal education may offer a viable means of presenting formal education to some who would not otherwise pursue it and of providing sizable injections of reality and research into an educational environment that could grow sterile without them. I believe it offers good potential for education for librarianship in the future."

4. EQUIPMENT

The FLNPP, in establishing its project parameters, had investigated and evaluated a number of pieces of telefacsimile and slow scan television equipment. FLNPP agreed to equip its sites with 4/6-minute Qwip, 35/60/90-second Rapifax 100, and Colorado Video Slow Scan Television. As the TALINET Project was planned, it was determined that this mix of equipment would serve the purposes of TALINET and would make the twenty (TALINET and FLNPP) sites compatible.

The three pieces of equipment were leased for each of the five TALINET demonstration sites and for the TALINET offices located at the Graduate School of Librarianship and Information Management.

In order to monitor all costs and to avoid going through switchboards, a TALINET telephone line was installed at each site and at the TALINET office. By using two data couplers and a two-way switch it was possible to use all three pieces of equipment independently on the one line. All billings for these lines and long distance charges were sent to the TALINET office. It was therefore possible to isolate any single transaction at any site and from the site transaction report to know which piece of equipment was utilized, the time and the dollar amount of the call.

All equipment was ordered for installation by July 10, in order that training and practice could begin as soon as possible. One site library required internal building wiring changes to accommodate the increased electrical load of the equipment. This delayed installation at this site by two weeks.

The equipment installation and training were relatively uneventful with two minor problems resulting from poor communication between sites and the vendors.

All three pieces of equipment--Qwip, Rapifax, and C.V.I. Slow Scan Television--had strengths and weaknesses as they were used in TALINET.

Training. Vendors of each piece of equipment provided a training session as a part of the installation and start-up process. Qwip utilized a telephone instruction session using a hands-on approach to learning. This was 95 percent effective with the major problem being the lack of understanding concerning cleaning the machine and the importance of proper clamp adjustment to hold the paper. The training was adequate and mastery of the Qwip 1200 should pose no problem for any library personnel.

The Rapifax 100 is a more complicated piece of equipment with a self-feed intake, self-feed printing and a machine-to-machine capability which can be initiated by the sender and received by the receiving Rapifax without anyone in attendance. The training was done on-site by a service representative at the time of installation. The training was much more complicated than the Qwip training, almost in direct relationship to the complexity of the machine. The evaluation of the

training varied in the five sites. All site personnel with TALINET responsibilities were able to master the operation of the machine but some operators felt the unclogging of paper jams and use of the automatic feed were not explained as clearly as they might have wished.

The Slow Scan Television by Colorado Video, Inc. was the most sophisticated piece of equipment, since the equipment consisting of a video camera, a television monitor and a video compressor and expander. The training was conducted by the installer, with follow-up instruction conducted by telephone as required. The user needed to be able to master the television camera with its lens adjustments for print size, distance, lighting, etc. It was also necessary to know procedures for adjusting the video compressor and expander for sending and receiving and to fine-tune the monitor. This equipment, though sophisticated, was mastered readily and required no special skills.

Problems. The problems encountered with Qwip centered on the odor which was quite discernible in small rooms where most of the equipment was installed, and with the malfunctioning of the paper clamp. The staffs were also concerned with the requirement that both a sender and receiver needed to be present for transmission, and there was rarely time for either person to do anything significant between starting the copy and removing the completed copy four to six minutes later.

In operating the Rapifax 100 staff were concerned with the paper drying out after several hours of non-use (due apparently to heat and low humidity), resulting in the first copies being very light or illegible. This was alleviated by reducing the room heat, turning off the machine at night (which made machine-to-machine use impossible while one machine was turned off) and by pulling off (wasting) several feet of paper at the beginning of each day. Other minor problems were jamming of paper which required shutting off the machine, locating the jam, removing torn or excess paper and resetting the paper cycle.

The Slow Scan television functioned adequately. However, for small print or to reproduce a large image on the monitor, the camera lens needed to be focused to cover only 1/4 to 1/2 page. This made the system slow and costly for library applications. One monitor failed during the practice period and was replaced by the factory within 24 hours as agreed in the contract. A second malfunction later in the demonstration was resolved by a telephone call.

All equipment was subject to some human error as all pieces of equipment at each site shared one telephone line. The two-position switch made it possible for each piece of equipment to operate on the line independently. However, if the switch was inadvertently left in the Qwip/Slow Scan position, the machine-to-machine capability of the Rapifax could not function until the switch was changed to the Rapifax position. This would not be the case in an operational mode since it is unlikely there would be two different pieces of facsimile equipment sharing the same line. The purpose of this arrangement in the TALINET demonstration was to save money on equipment costs and to avoid paying for unused duplicate telephone services.

In terms of equipment operation, the staffs using the equipment fared exceptionally well, but were sometimes viewed by other library staff as highly skilled technicians who could operate "that telefacsimile equipment." Operation of the TALINET facsimile equipment therefore raised no barrier except a psychological one for the non-operators.

5. MARKETING OF THE TALINET PROJECT

The design of the TALINET Project made provision for the creation of marketing tools--a news release, a slide/tape program, and a printed brochure--for use by the site libraries as they saw fit. TALINET staff also actively participated in direct contact marketing at each site. Because each site library carried out promotion and publicity for the TALINET Project in a manner appropriate to its community or region, a wide variety of tools and techniques were employed. There was, however, a high degree of consistency among the sites.

All five sites issued a series of news releases to the local media--newspapers, radio and television. One site library--Natrona County Public Library in Casper, Wyoming--operates its own public cable television station on which the Project was heavily publicized. Another site library--Rapid City (South Dakota) Public Library--was able to get brief releases published in two Chamber of Commerce newsletters (Rapid City and Sturgis) in addition to the conventional media.

An important aspect of media coverage in all five sites, probably contributing largely to its effectiveness, was treatment of TALINET as news rather than just another release. Newspapers in all five sites carried long news articles concerning the local library and the Project. In four communities, local library staff and/or the TALINET GRA were interviewed on the radio and in three communities they were also interviewed for television.

Two other publicity techniques normally employed by libraries--printed fliers and speaking to groups--were also used in marketing TALINET services. Four of the participating libraries prepared their own fliers, brochures, or information packets on TALINET services, primarily for in-library distribution. Local library staff and/or the TALINET GRAs presented TALINET to several club or organization meetings in three of the communities, sometimes with the aid of the slide/tape presentation prepared by the TALINET staff.

Both of these "conventional" techniques--printed fliers and public contact--were expanded upon in more "unconventional" ways to market TALINET services. TALINET experimented, apparently quite successfully as indicated by subsequent interviews of users, with direct mail. More than 1,500 TALINET brochures were mailed to potential users of TALINET services as identified by early stages of community analysis in four of the sites. In Dodge City, a locally prepared brochure was also mailed to potential users. In Rapid City, letters explaining the TALINET Project and offering its services were mailed to every Planning and Zoning authority and every Chamber of Commerce within a 50-mile radius.

In addition to meeting with groups, special meetings were arranged to explain the TALINET Project to potential users. TALINET staff visited selected businesspersons and government officials in nearly every site. Visits were also made to numerous libraries in the areas surrounding each site. Each TALINET GRA also visited with administrative and service staff of the State Library in their site states to ensure communication and cooperation between TALINET and these agencies. Two of these State Libraries subsequently employed TALINET for their own information needs.

One extra twist was added to the public contact technique of marketing for the TALINET Project. Each TALINET GRA visited their respective site library in late August/early September. At that time, they conducted a number of invitational Open House demonstrations and explanations of TALINET technology and equipment. The same individuals to whom TALINET brochures were addressed were invited to attend a prescheduled Open House demonstration. About 200 persons attended these demonstrations at all five sites. Local library staffs also conducted other demonstrations for invited groups. In two sites, one of these Open House demonstrations was filmed for airing on local television news programs.

On September 11, 1978, the official Opening Day of TALINET, each of the five sites, along with NOAA and the TALINET headquarters office at the University of Denver, participated in a "ribbon-cutting" ceremony. Local government officials participated at each site along with the library staffs. Greetings were exchanged among all site library directors and the directors of each State Library. Local and state officials participated at the University of Denver.

Because of the nature of the TALINET Project as a short-lived demonstration, most marketing activities were concentrated at the beginning of service. Some potential users who were new to the area or who had not made use of the services were identified in each site in December. Invitations to employ TALINET services were extended to most of these persons or organizations by the respective site library directors in early January. In light of the fact that 70 percent of all users interviewed throughout the TALINET Project had become aware of the Project as a direct result of these marketing techniques, and inasmuch as 20 percent of interviewed users had not previously used the site libraries for information services, these expanded marketing techniques appear to have been effective. Furthermore, it may be implied that such techniques represent a largely untapped means of bringing a wide variety of library services and users together.

6. PROCEDURES AND METHODOLOGY

Before proceeding to a discussion of Project activities and findings it is necessary to first understand the procedures employed in the delivery of project services and the terminology that is used throughout this report.

Initial intake of all requests handled by TALINET was performed by staff at the five site libraries. The intake person was usually the designated site coordinator or assistant site coordinator; depending on staffing patterns, this function was occasionally performed by other staff. Decision as to whether or not to route any patron request through TALINET was made either by the intake person or by that person in consultation with one of the coordinators. It was originally intended that TALINET would serve as a "backup service"; i.e., that it would meet demands for information that could not be reasonably provided by local or existing network resources because of limitations imposed by either resources, time, or cost. Consequently, TALINET was not just an adjunct service. A user might come to the library with a request and ask to use TALINET, but library staff were to make a professional decision as to the appropriateness of using this route. Adherence to this procedure was uneven among the sites during the Trial Operations period, resulting in a number of requests reaching TALINET that did not seem appropriate. Correlation between the intent of TALINET services and the requests received was much closer to ideal during the Demonstration Phase. In general, the requests forwarded to TALINET during the Demonstration Phase were actually those which the site library was unable to answer. These represented only a portion of the "reference traffic" in any site library and involved more difficult and time consuming search strategies and follow-up by the TALINET staff.

Once site staff had determined to employ TALINET for a request, a TALINET Request Form was filled out. This form (see Appendix B, No. 1) asked for information as to the nature of the request, the extent of search required (depth and breadth of information desired) or specific information for document location and delivery. Requests were classified as one of three types: (1) Interlibrary loans (ILLs) - which applied to requests for specific documents (articles, reports, monographs, etc.) whether or not they would ultimately be obtained from another library or some other source; (2) Literature Searches--requests involving the searching of appropriate indexes or data bases to generate a bibliography of source documents on a specific topic; the bibliography was the end product of this activity and was most frequently generated by online searching of data bases provided by Lockheed, Systems Development Corporation, or Bibliographic Retrieval Services; (3) Reference Questions--those requests asking for a discrete item or items of information or an answer to a specific question; these requests most often required employment of traditional reference skills.

At the same time the Request Form was completed, the transaction ("request" and "transaction" will be used interchangeably throughout this report) was entered in a Site Log. This log (see Appendix B, No. 2) recorded the date the request was received at the site library, the type of request, a unique identification number entered on all other forms or correspondence related to the

transaction with space to record later the date a response was received, the date the patron ("patron" and "user" are synonymous throughout this report) was given the information, and the identification of the receiver.

At the time of transmittal of the request to TALINET a Transaction Form was filled out at the site. This Transaction Form (see Appendix B, No. 3) recorded the transaction I.D. number, the nature of the request, the patron's name and contact information, and detailed information on the mode of transmittal. During both the Trial Operations and the Demonstration Phases, virtually all requests were transmitted from the sites to TALINET on one of the two pieces of telefacsimile equipment. During a 3-week period from October 16 to November 3, a period of alternating "forced use" was imposed on the sites to assure adequate experience with both pieces of telefacsimile equipment. Each site was required to send all requests via Qwip on one day and on Rapifax the next day throughout this period. TALINET transmission mode to the sites was alternated in similar fashion during this period.

Requests were received at the library of the National Oceanic and Atmospheric Administration (NOAA) Laboratories in Boulder, Colorado. A technician received the requests and logged them in on the TALINET log form (see Appendix B, No. 4).

Five days a week, Monday through Friday, two TALINET staff members (GRAs) commuted to the NOAA Library to process requests. Their hours of work corresponded to one FTE (full-time equivalent) staff member. Handling of requests was different for each type: ILLs were verified and searched for at appropriate resources--a NOAA clerk obtained materials available at University of Colorado Libraries, TALINET staff obtained materials available at other Denver Metro Area libraries, ALA (American Library Association) forms and procedures were used to obtain materials from libraries outside the area, and telephone calls to authors, agencies or private firms were made to obtain other materials. Literature searches were performed almost exclusively online with hardware and user I.D.'s provided by NOAA; reference questions were researched by TALINET staff at Denver Metro Area libraries and nonlibrary resources and by telephone calls to individuals, agencies, and private firms throughout the United States--virtually all telephone calls were made via the Federal Telecommunications System from NOAA.

During the Trial Operations period, informal working priorities were established to handle requests. Those requests with specific deadlines or where some urgency was indicated were normally processed first with others of less urgency waiting for attention. Staffing patterns resulted in some problems with communication and continuity since an attempt was made to have one staff person follow a request all the way through the process as much as possible. This occasionally resulted in a transaction becoming "buried" or "lost" when other staff needed to answer questions concerning its status.

Once a request had been processed this information was recorded on the TALINET Log and a Response Form (see Appendix B, No. 5) was completed to be sent to the site identifying any accompanying material. Transmittal to the site was performed by the same technician who received the original requests. Except for periods when equipment usage was specifically prescribed for experimental purposes, this technician was allowed individual discretion as to transmittal mode to be employed. At this time he also completed another Transaction Form (see Appendix B, No. 6) to record details of the transmission. A period of "forced-use" was imposed upon the technician during

the Demonstration Phase to assure a large enough population of end users whose requests were transmitted by each piece of the telefacsimile equipment. For a period of four weeks, all requests that could be telefaxed were transmitted by Qwip on one day and by Rapifax the next. Exceptions were made only when the size or volume of transactions to be transmitted placed such large demands on staff time as to preclude Qwip transmission. During the last stages of the Demonstration Phase, Qwip was used almost exclusively in transmission to the sites to assure that there would be a sufficiently large number of Qwip transactions to sample.

Upon receiving a response, the site libraries logged in the date of response, contacted the patron and recorded the date at the time the patron picked up the information. The site library maintained complete files of their Transaction Forms and Logs throughout the Project, as well as sending copies of completed Transaction Forms weekly to TALINET headquarters for data compilation.

Data from the various forms and logs was collated on a Master Data Form (Appendix B, No. 7) for analysis. A brief statement of the request, the type of request, a subject area (all assigned by one person), information about the patron, the process time, the transmission modes between the sites and TALINET, deadlines, and sources of information were collated on this form. This collation rendered the raw statistics for this report. Frequencies and chi-square tests of significance were run where appropriate and are included in the body of this report.

With the assistance of a research associate of the Denver Research Institute, plans were made to interview a number of end users of TALINET Services. An initial interview form (Appendix C No. 1) was prepared and a sample of 50 users was interviewed during the Trial Operations Phase. As a result of these interviews, both TALINET operations and the interview tool itself were examined and improved for the Demonstration Phase. A new sample of 50 users was drawn at the end of the Demonstration Phase. This sample yielded 32 usable interviews. (Revised interview form: Appendix C, No. 2).

In addition, to partially measure the ultimate value and time-value of information, at least one regular user in a decision-making role was identified in each site. A total of seven interviews were conducted which yielded usable responses. Interviewed were one city manager, one agricultural research scientist, two geologists, one college professor, one architect and one private investor. The information-seeking and decision-making processes of these individuals were explored with a detailed examination of the impact of TALINET services on these processes. (Interview form: Appendix C, No. 3.)

Finally, TALINET staff conducted debriefing interviews with the directors of each of the site libraries and with the site coordinators and assistant coordinators. The interviews with the directors were guided by an interview outline (Appendix C, No. 4) and recorded on tape. The site coordinators and their assistants were interviewed by use of a highly structured form (Appendix C, No. 5). The results of these debriefing interviews are reflected in the sections on Barriers, Findings, and Future Directions.

7. THE TRIAL OPERATIONS PHASE

On September 11, 1978 a coordinated official project opening was conducted with telefaxed greetings being exchanged between Project headquarters and the sites. Each site slow-scanned a staff and library picture, and participants at each site received a telefaxed TALINET opening certificate. (See Appendix E.)

The trial operations period extended from September 11 through December 20, 1978. During this period the sites telefaxed questions daily to NOAA. The TALINET GRA staff received and researched the questions and followed up with the indicated response as described in the section on Procedures and Methodology.

Daily contacts were maintained with the sites by telefax, weekly by telephone, and at least one visit to each site was made by Project administrative staff.

The Trial Operation period was used to refine all elements of the TALINET system. The GRA staff achieved a high level of proficiency in computerized searching and utilizing the Denver area reference resources. The site coordinators became more proficient in intake procedures. Intensive work was carried out in revising and refining the research instruments. Those elements which slowed down the system were identified and modifications made to eliminate the deterrents.

At this point there appeared to be a preference shown for the more expensive machine-to-machine telefacsimile. The period of "forced use" described in the section on Procedures and Methodology was conducted during late October/early November to assure experience on both pieces of equipment. During the ensuing period of "free choice," the preference for Rapifax on the part of the library staffs remained as strong as before the "forced use" period.

In October each GRA made a third site visit. It was the purpose of this visit to further marketing efforts with non-user segments of the population, to improve the intake methodology of the reference librarians, and to discuss local problems and project system constraints.

A site interview form was developed for use with patron users. A transaction cost analysis form was also developed. The cost analyses made it possible to provide patrons with the cost of their transaction were it not provided free by the Project and to ascertain if the patron would have been willing to pay all or part of the costs. A random sample of 10 users per site was identified and interviewed by the GRAs. This was the first user reaction to the TALINET service as a part of the research design.

The TALINET staff agreed that within the Project time constraints, the period January 4 through February 28, 1979 would provide the most logical and best demonstration test period for the entire TALINET system.

In preparation for the Demonstration Phase, the GRAs made an analysis of the questions coming from each site during the Trial Operation Phase. Questions were categorized by type (interlibrary loan, computer search, or request for specific information) and by the user (professional, government, lay, education, etc.) This site analysis was again utilized to identify groups of non-users and to contact specific commercial, governmental, and professional groups and individuals as a final TALINET marketing effort.

A total of 674 requests were received by TALINET during the Trial Operations Phase. The accompanying Table 7-1. shows the breakdown of these transactions by type. Similar information for each site may be found in Appendix A.

TABLE 7-1

TRANSACTIONS BY TYPE--ALL SITES
TRIAL OPERATIONS

Interlibrary Loan	333	49%
Literature Search	159	24
Reference	182	27
	674	100%

The 674 transactions were submitted by 293 individuals. The accompanying Figure 7-1 shows the composition of the total group of users by occupation. All individuals identified by occupation are so identified solely because their requests were related to their occupation. For a more detailed breakdown see Appendix D.

Figure 7-1
Patron Groups -- All Sites
Trial Operations Period

Total Patrons = 293

Figure 7-2 indicates the number of transactions submitted by each of the patron groups. Again, a more detailed breakdown may be found in Appendix D.

Figure 7-2

Total Transactions by Patron Group – All Sites
Trial Operations Period

Total Transactions = 674

Comparing Figures 7-1 and 7-2, we observe a significant difference between the make-up of the total group of end-users and the pattern by which those users submitted requests. (Using the chi-square test of significance, $0.005 < p < 0.01$). Government, other professionals, and, especially, libraries submitted a disproportionately large number of requests to their percentage of the total user group. On the other hand, businesspersons submitted a disproportionately small number of requests.

Of the random sample of TALINET users interviewed during the Trial Operations phase, 22 percent indicated they had not previously used the site libraries for information requests. All of those previous non-users also indicated that they would use the library for similar requests in the future although none had done so at the time of the interview.

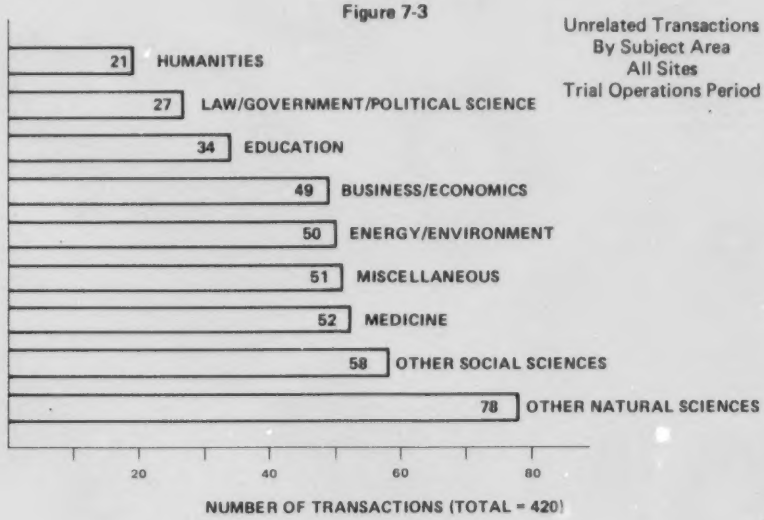
Of the users interviewed, 87.5 percent were aware of the TALINET Project in their libraries at the time they made their requests. Of those, 71.4 percent had become aware of the Project through marketing efforts designed expressly to promote TALINET.

Because of prevailing economic and social conditions in the sites chosen for TALINET participation, it was anticipated that the primary beneficiaries of TALINET services would be business, government and the scientific communities. In actual experience during the Trial Operations phase,

these categories of users (as most broadly defined) constituted only 32 percent of the total user group and submitted 31 percent of the total transactions received by TALINET.

Another expectation was that TALINET would serve primarily scientific/technical information needs (and especially information needs in energy and environment) with a secondary emphasis on business information needs. In actual experience during the Trial Operation Phase, this seems to have largely held true. Figure 7-3 presents the subject groups represented by the 420 unrelated transactions submitted during this period. (Unrelated transactions are defined as requests made by the same user on a different topic or on the same topic for a different end-use. In doing the subject analysis, this distinction between total and unrelated transactions was made to prevent a large number of ILLs on one topic from skewing the distribution.)

Figure 7-3



Scientific/technical information requests constituted 42.9 percent of all unrelated transactions and Business and Economics represented an additional 11.7 percent. A major surprise was the large number of Medical information requests, most of them quite sophisticated and primarily submitted by lay persons.

At the beginning of the Project, all site libraries were interviewed regarding their existing methods of providing services. The various sites reported turnaround times of one to two weeks for most requests that had to be sent out of the library for processing.

During the Trial Operations phase, the average process time (from TALINET intake to the site library) was 17.6 days for those transactions completed. An important difference, however, is readily apparent between Process Time utilizing mail (as all existing systems serving the five TALINET sites do for document delivery) and Process Time utilizing telefacsimile. The Average Process Time utilizing mail was 22.7 days as opposed to an Average Process Time utilizing telefacsimile of 16 days. Median service times respectively were 18 and 15 days. A graphic illustration of

the relationship between time and requests delivered is presented for both modes of delivery in Figure 7-4. A chi-square test for the two modes of delivery over the various time periods yields $p < 0.001$. Please note: All time periods discussed in this report include weekends and holidays.

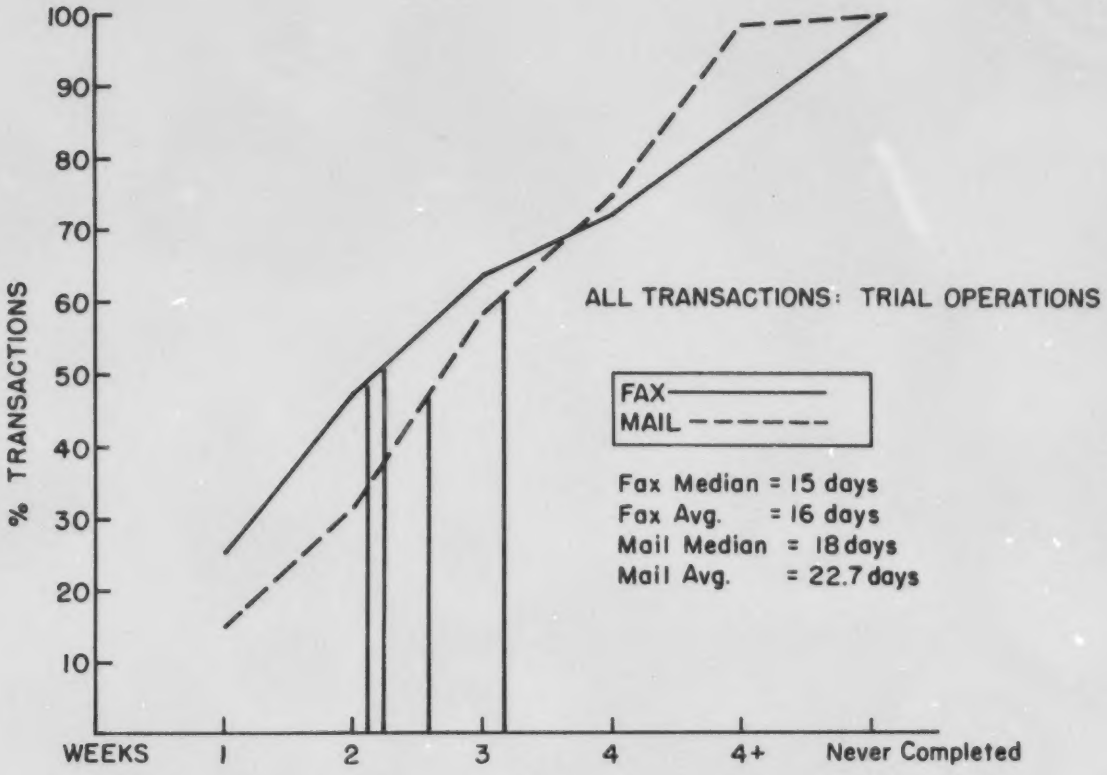


Figure 7-4

It is also worth noting that during this phase there was a significant difference among Process Times for the three types of transaction. (A chi-square list of significance yields $p < 0.001$.) For those transactions sent by telefacsimile, reference questions took an average of 16 days, while ILLs and Literature Searches took 15 and 14 days respectively. Figure 7-5 graphically presents the relationship between Process Time and requests delivered in the three categories. These differences in Process Times point up a factor that must be emphasized in every analysis reported here. Namely: the preponderance of time in every transaction was spent locating the material, organizing, packaging and preparing it for delivery. These time elements are dependent on the location of the information, the searches, the priority of the request, the completeness of information provided about the request, and desk time the request receives. Telefacsimile can reduce delivery time , but cannot affect the human or institutional factors except as rapid delivery tends to improve and speed up the research process by the emphasis it places on the importance of time in the whole process.

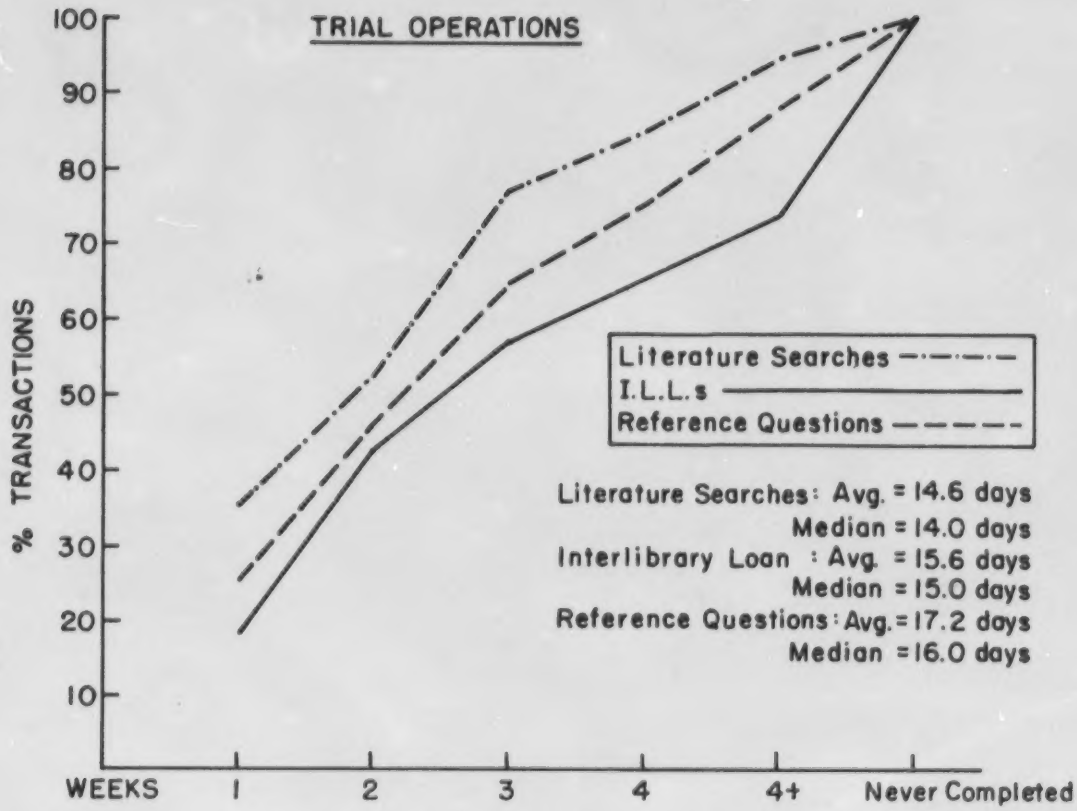


Figure 7-5

Although the TALINET Request Form asked for an indication of the "Last Useful Date" on all transactions, a deadline of some sort was indicated on only 58 percent of the requests received during the Trial Operations period. For those transactions where a deadline was specified as a date or time period (as opposed to those marked simply "RUSH"), the average deadline was 10 days (from the time it was received by TALINET), the median deadline was seven days and the most frequent deadline was also seven days. While TALINET met only 41.2 percent of these deadlines during the Trial Operations phase, use of the mails for all transactions would have further lowered that to 28.9 percent.

By far the most interesting information regarding the time demand for information came from the patron interviews. Regardless of the actual length of Process Time, only two individuals (6.25 percent of usable interviews) indicated that the Process Time did not seem reasonable; however, 15.6 percent of the users interviewed indicated that the material would have been more useful if they had received it earlier.

Previous experiments with telefacsimile in library environments indicated patron and librarian dissatisfaction with the quality of copy delivered in this manner. Of the 32 users interviewed, 28 received telefax copy. Only three (10.7 percent) reported dissatisfaction with the copy received.

A major dissappointment during the Trial Operations Phase was experienced by TALINET in the employment of Slow Scan Television (SSTV). Successful use of this equipment is predicated on three underlying requirements: (1) availability of the user, (2) availability of resources, and (3) the capabilities of the equipment itself. All three must come together to make SSTV an effective library tool. Unfortunately, they did not mesh effectively during the TALINET demonstration.

SSTV equipment was in place at all five sites, the NOAA operations center and TALINET headquarters during the Trial Operations Phase. During this time, it was found that the first two requirements were not met in appropriate combination for SSTV to be a practical tool. The NOAA Library resources, which represented the most immediately available resource, provided end-products for only 4 percent of the requests received. In the overwhelming majority of cases, the patron was not immediately available at the site library at the same time these materials were located in the NOAA collection. The three actual uses of SSTV (excluding all practice activity) were made by appointment with the users to be in the site library when material was available for transmission.

In actual practice, in the three cases mentioned, the Colorado Video, Inc. (CVI) SSTV equipment tested by TALINET was found inappropriate for widespread library application. It was found that in order to assure adequate resolution for legible video images, only 1/4 to 1/2 page could be transmitted at one time. As a result, it was felt that the use of SSTV is too time consuming and costly at this time for widespread library application. The primary justification for using SSTV is to reduce the costs of transmitting useless documents. In the present context, the telefacsimile is probably as useful for this purpose. The experience with SSTV during the Trial Operations Phase and the conclusions drawn from analysis of that experience led to its deletion during the Demonstration Phase of the Project.

8. DEMONSTRATION PHASE

An internal evaluation of TALINET operating procedures and the assumptions on which those procedures were based was made in December. At that time, procedures for carrying out the Demonstration Phase were designed. Significant changes from the Trial Operations phases were the following:

1. ILL requests were limited primarily to materials known to be available at the University of Colorado or NOAA. Periodical holdings lists for these two collections were provided each site library. TALINET further agreed to obtain other materials as they were available from the Denver Public Library or the Penrose Library at the University of Denver, but to provide location information only for other materials. The rationale for the latter restriction was that the sites could directly obtain those materials faster than the staff at NOAA could obtain them and then forward them to the sites.

2. Requests were formally prioritized in a three-tier hierarchy:

Priority One would be those requests for which the patron indicated a definite deadline date from one day to four weeks. These requests were processed solely on the basis of deadline date.

Priority Two would be requests with no specific deadlines but which the site staff deemed otherwise unobtainable through existing resources.

Priority Three would be any requests not falling in the above two categories. These requests were processed only when there were no requests in Priority One or Two to be processed.

3. More detailed information was obtained about the user and the use to which the results of the request were to be put. This permitted a better assessment of the extent of search required and allowed direct contact with the patron if necessary.

4. Requests were processed strictly in accord with their priority classifications. Therefore one staff member might not see a request through from beginning to end, but communications and continuity were improved.

Following a two-week break during the Christmas holiday season, TALINET resumed operations in the Demonstration Phase on 4 January 1979. At that point there remained some question as to how long this phase could continue since the Project was awaiting word from HEW regarding an extension of the TALINET grant period. The extension was granted by HEW and the demonstration was continued until 31 March 1979. The original intent was to continue telefacsimile transmission through 28 February and then employ only mail during March for comparative data. During February, transmission to the sites was concentrated on Qwip to provide adequate data for comparison with the large volume of Rapifax transmissions during the Trial Operations Phase and the first month of the Demonstration Phase. Due to the high percentage of multiple use during this period,

Qwip transmission was continued into March. Enough transactions did occur that were unsuitable to telefacsimile transmission to provide comparative data on mail service.

Approximately 10 percent of all Interlibrary Loans were microfiche materials that could not be faxed. Almost a quarter of the Literature Searches involved ordering large numbers of off-line prints; these were usually so bulky that the decision was made to mail them to the patron. Also, monographic materials, maps, white on black copy, very long journal articles or large numbers of journal articles for one user were usually mailed.

At the end of the demonstration period, a sample of 50 users was drawn for interviews. This sample yielded 32 usable interviews.

During the Demonstration Phase, TALINET received 284 requests. The breakdown of this total by type of transaction can be seen in the accompanying Table 8-1.

TABLE 8-1
TRANSACTIONS BY TYPE--ALL SITES
DEMONSTRATION PHASE

Interlibrary Loan	170	60%
Literature Searches	48	17%
Reference Questions	66	23%
Total	284	100%

The 284 transactions were submitted by 127 individuals. The accompanying Figure 8-1 shows the composition of the total group of users by occupation.

Figure 8-1

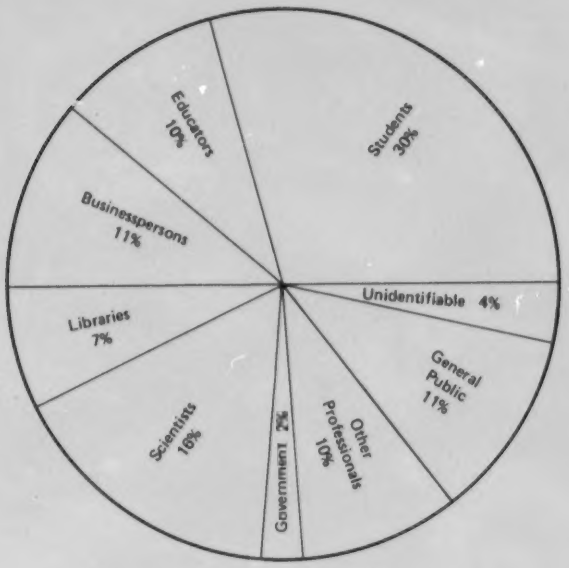
Patron Groups – All Sites
Demonstration Period

Total Patrons = 127

Figure 8-2 indicates the number of transactions submitted by each of the patron groups.

Figure 8-2

Total Transactions by Patron Group – All Sites
Demonstration Phase



Total Transactions = 284

Comparing Figures 8-1 and 8-2, we observe a significant difference between the makeup of the total group of users and the pattern by which those users submitted requests (The chi-square test for significance yields $0.005<p<00.010$.) Scientists and other professionals submitted a disproportionately large number of requests for their percentage of the total user population, while libraries and the lay public submitted a notably disproportionately small number of requests.

The expected beneficiaries of TALINET services--business, government, and the scientific community--represented 31.5 percent of the total population of users and submitted 39 percent of all TALINET requests during the Demonstration Phase.

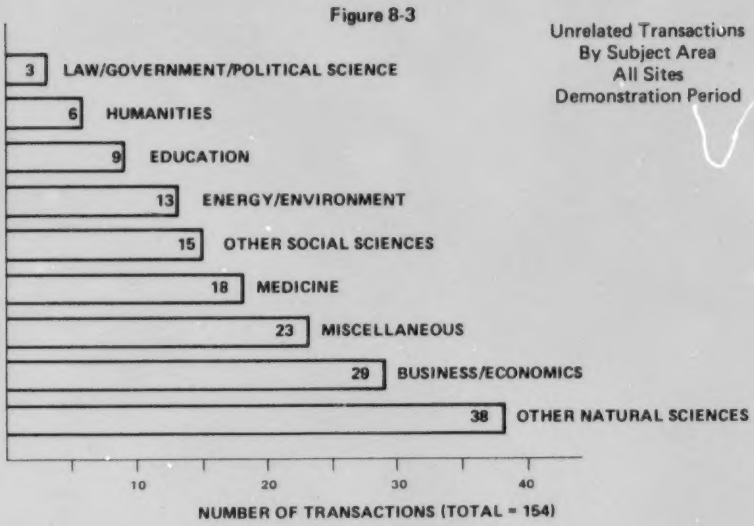
Of the random sample of TALINET users interviewed at the end of the Demonstration Phase, 19 percent indicated that they had not previously used the site libraries for information services. All of these persons indicated that they would use the library for similar services in the future.

There was a high percentage of previous library users in the interview sample. However, in attempting to meet the information needs that were eventually addressed by TALINET, only 28 percent of these users came first to the site library. Others went first to academic libraries, other public libraries, subject specialists, or special libraries, in that order.

At the time of the interviews, 39 percent of those interviewed indicated they had no idea where they would have gotten the information if TALINET had not provided it. An additional 16 percent said they would have gotten along without it. Only 46 percent had some idea of where else they might have obtained the information. These figures have obvious implications for the education of information users.

Figure 8-3 presents the subjects represented by the 154 unrelated transactions submitted during the Demonstration Phase.

Figure 8-3



Scientific/technical information requests constituted 45 percent of all unrelated transactions during this period, and Business and Economics represented an additional 19 percent.

During the Demonstration Phase, the average Process Time (from TALINET intake to the site library) was 11.3 days. An important difference is once again apparent between process time utilizing mail and process time utilizing telefacsimile. The Average Process Time utilizing mail was 14.2 days as opposed to an Average Process Time utilizing telefacsimile of 10.2 days. Median service times were 10 days and 11 days respectively. A graphic illustration of the relationship between time and requests delivered is presented for both modes of delivery in Figure 8-4. A chi-square test for significance for the two modes of delivery over the various time periods yields $p<0.001$. Unlike the Trial Operations Phase, the Demonstration Phase showed no significant difference in Process Times for the various types of transactions.

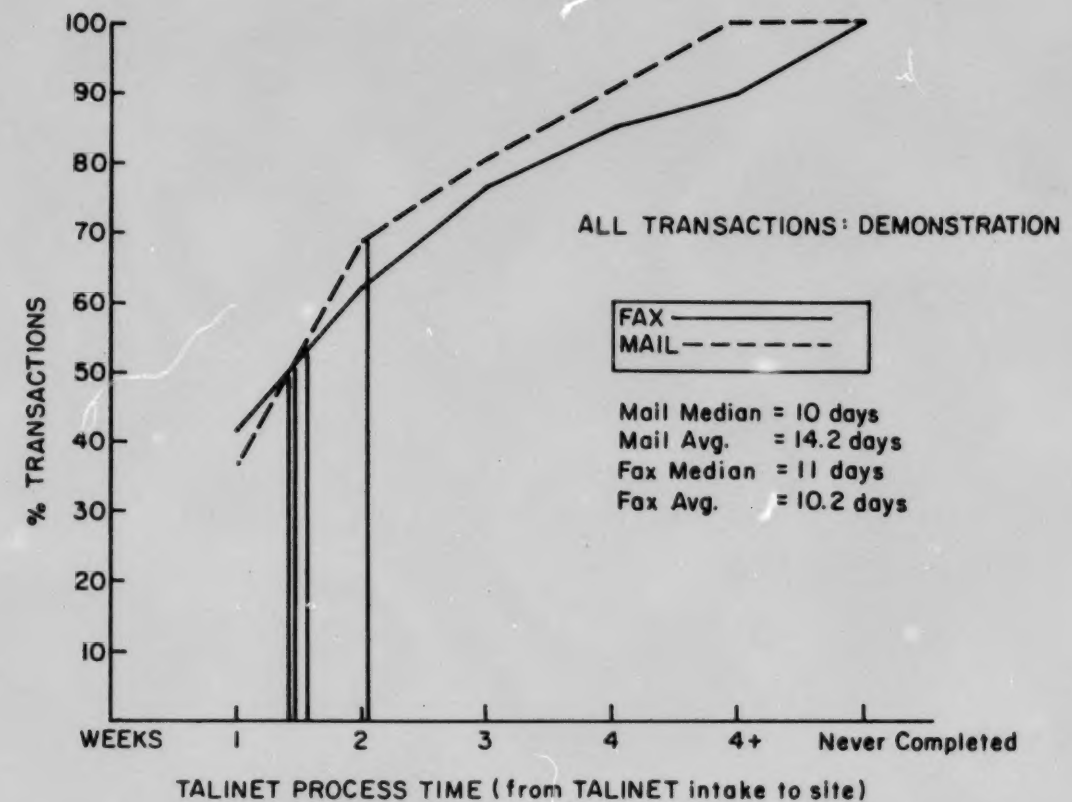


Figure 8-4

Eighty-two percent of the transactions received during the Demonstration Phase indicated a specific deadline. The average, median, and most frequent deadlines were all 14 days from the day requests were received by TALINET. TALINET staff met 69.2 percent of all deadlines during this time. Use of the mails for all transactions would have lowered that performance to 46.2 percent, all other things being equal.

Once again, the most interesting information regarding the time-demand for information came from the patron interviews at the end of the Project. Regardless of the actual length of service time, only one individual indicated that the Service Time seemed unreasonable (Service Time on that particular request was five days and was shorter than the patron's 7-day deadline.)

Seventeen percent of all users interviewed indicated that the material would have been more useful if they had received it earlier. However, 75 percent of those patrons whose deadlines were not met, indicated that the information would not have been more useful if they received it earlier.

Only 28.5 percent of all users indicated that receiving the information a week later (as would have occurred if the mails had been used both ways) would have made any practical difference to them. Interestingly enough, the same 75 percent of users whose deadlines had been missed and who indicated that the information would not have been useful earlier, also indicated that a delay of an additional week would have made a practical difference. In brief, the use of telefacsimile made a practical difference to 28.5 percent of all end-users served by TALINET. The ultimate cost-benefit analysis would weigh the cost of telefacsimile delivery of information against the value of the difference made to users by employing this technology. Unfortunately, TALINET did not have tools of sufficient sophistication to make such an analysis.

In an attempt to partially measure the ultimate value and time-value of information, at least one regular user in a decision-making role was identified in each site. A total of seven interviews were conducted which yielded usable responses. Interviewed were one city manager, one agricultural research scientist, two geologists, one college professor, one architect and one private investor. The information-seeking and decision-making processes of these individuals was explored with a detailed examination of the impact of TALINET services on these processes.

The primary information source employed by these persons are the "invisible colleges" of colleagues and specialists. Special libraries serve as a second major source of information. While none of the respondents mentioned the public library as a primary source of information, five of the seven indicated that they had used this source in the past. Only one reported complete satisfaction with the public library as a past information resource; all those who had used public libraries reported favorably on the quality of service provided, but most felt that resources were limited for their needs. Four of the five previous users of the site libraries reported their perception of an improvement in the usefulness of the libraries for their needs as a result of TALINET services. Three felt the major improvement was made in the time of information delivery; two emphasized the expansion of resources. (Note: one respondent commented on both time and expansion of resources.)

Service time for information to these individuals ranged from three days to three weeks. Two of the respondents received additional materials over a period of 1 1/2 to 2 months. Although only one respondent felt the service time was unreasonable (this patron had a need for the information within 24 hours), time was generally more important to these users than to the random sample of all users. Three of the seven respondents indicated that the information would have been of greater use if it had arrived sooner, and four of the seven stated that an additional one week delay would have made a practical difference to them. Time was especially important to those respondents who had to make decisions involving the commitment of private funds.

Six of the respondents indicated that the information provided through TALINET had a definite impact on decisions made and consequent courses of action. Actions affected were: establishment of a municipal wastewater treatment and methane gas production facility, investment in an aquaculture project, conduct of an agricultural research project, bidding on two construction projects, development of several minerals development propositions, and content of a new college course offering.

Previous experiments with telefacsimile in library environments indicated patron and librarian dissatisfaction with the quality of copy delivered in this manner. Of the 32 TALINET users interviewed during the Demonstration Phase, 78 percent were fully satisfied with the copy. A comparison of Rapifax and Qwip acceptability is made in Table 8-2.

TABLE 8-2

Legibility:	Satisfactory		Unsatisfactory	
Rapifax	18	82%	4	18%
Qwip	7	70%	3	30%
TOTAL	25	78%	7	22%

Despite librarian criticism of Qwip resolution quality, a chi-square test of significance on this matrix yields no significant difference in acceptability between the two pieces of equipment. Most patron complaints had to do with clarity at page edges or with clarity of fine print. It should be noted that Qwip has resolution to accommodate print sizes of 10-point and 8-point in the 4- and 6-minute modes respectively, while Rapifax can accomodate print sizes of 10-point, 8-point, and 6-point in its High Speed, Standard, and Fine Detail modes, respectively. (Print size capabilities are indicated for character legibility.)

Any complete assessment of the results of the TALINET Project needs to consider those differences between the Trial Operations and the Demonstration Phases. Remembering the changes in operating procedures mentioned earlier, the following results can be identified:

1. Decrease in volume of activity. As may be seen from Table 8-3, volume of activity during the Demonstration Phase decreased by an average 57 percent from the volume of the Trial Operations Phase. This may be attributed to a variety of possible causes--changes in procedures and several weeks of severe weather regionally being two among many.

Transactions by Type--All Sites

TABLE 8-3

	Trial Operations		Demonstration		Total	
Interlibrary Loan	333	49%	170	60%	503	52%
Literature Searches	159	24	48	17	207	22
Reference Questions	182	27	66	23	248	26
TOTAL	674		284		958	

2. A decrease in average and median Service Times, from 16 and 15 days respectively during Trial Operations to 10.2 and 11 days respectively during the Demonstration Phase. (See Figure 8-5 following page.)

3. An increase in the ability to meet stated deadlines, from 41.2 percent met during Trial Operations to 69.2 percent met during the Demonstration Phase.

4. As the Project continued, a significant shift occurred in the requests received toward the scientific/technical and business fields as expected at the outset. (54.5 percent in Trial Operations; 63.6 percent in Demonstration; a chi-square test across all subject areas yields $0.025<p<0.050$.)

5. As the Project continued, a significantly larger number of requests were submitted by the professional groups anticipated to be TALINET's heavier users--Businesspersons, Government, and the Scientific Community. (31 percent in Trial Operations; 38 percent in Demonstration; a chi-square test across all subject areas yields $p<0.001$.)

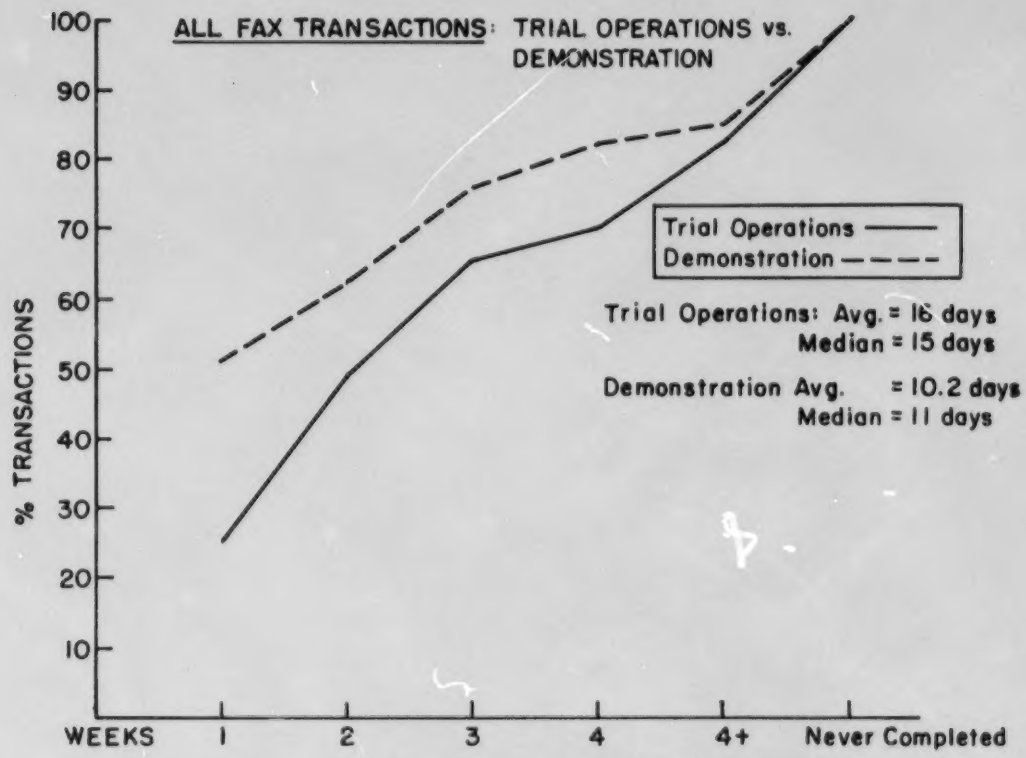


Figure 8-5

Finally, the wide variety of information sources drawn upon to provide TALINET services should be noted. TALINET drew upon 77 unique information resources in addition to online computerized data bases provided by Lockheed, System Development Corporation, Bibliographic Retrieval Services, and NASA and DOE RECON. OCLC's online bibliographic system was also utilized. The computer data bases provided end-products for 29 percent of all requests received by TALINET.

Of the 77 unique information resources, 53 or 69 percent represented resources that would not normally be available or employed by the site libraries. These resources provided end-products for approximately 10 percent of all TALINET transactions. Ten Federal libraries participating in the Federal Library Network Prototype Project were employed as resources, producing end products for 50 requests, or 5.2 percent of total transactions. Of this number, NOAA/Boulder itself accounted

for 39. Eleven other resources in the Denver Metro area represent resources that would normally be available to the site libraries, but whose use was facilitated by TALINET operational configuration. These resources provided end-products for 42 percent of all requests. Table 8-4 lists the information resources employed by TALINET and the number of end-products they supplied.

TABLE 8-4

		No. of End Products Provided
Sources for TALINET Information Services		
Computerized Data Bases		280
Colorado University Libraries		219
Denver Public Library		118
University of Denver, Penrose Library		31
CU Medical--Dennison Library		19
Colorado State University--Fort Collins		14
OCLC		14
FLNPP		50
Argonne National Laboratories; Chicago, Illinois	1	
Brookhaven National Laboratories; Upton, New York	1	
FLNPP (specific source unknown)	1	
Lawrence Berkeley Laboratory; Berkeley, CA	1	
Los Alamos Scientific Laboratory; Los Alamos, NM	1	
NOAA/Boulder, CO	39	
NOAA/Rockville, MD	1	
Portland, Maine, Public Library	1	
University of Maine	1	
U.S. Dept. of Commerce Library, Washington D.C.	3	
Other Federal Agencies		15
Bureau of Mines	1	
Clinch River Breeder Reactor; Oak Ridge, TN	1	
Environmental Protection Agency, Denver, CO	1	
Federal Communications Commission, Washington D.C.	1	
Food and Drug Administration; Boulder, CO	1	
Hanford Atomic Works; Richland, WA	1	
Hawaii Volcano National Park (Park Naturalist)	1	
National Weather Service	1	
Naval History Center; Washington, D.C.	1	
Office of Ambassador Mansfield	1	
U.S. Department of Agriculture; Boulder, CO	2	
U.S. Fish and Wildlife Service, Denver, CO	1	
U.S. Geological Survey	2	
Other State and Local Agencies		5
Boulder Valley School District; Boulder, CO	1	
Cheyenne and Casper, Wyoming, Employment Offices	1	
Denver Public School System	1	
South Dakota Dept. of Education	1	
Wyoming State Legislature	1	

Other Universities		21
Colorado School of Mines; Golden, CO	2	
Iliff School of Theology; Denver, CO	3	
Montana School of Mines; Butte, MT	1	
Rice University	1	
St. Thomas Seminary; Denver, CO	1	
University of Arizona	2	
University of Colorado, Faculty	1	
University of Northern Colorado; Greeley, CO	3	
University of Denver, Faculty	2	
University of Denver, Graduate School of Librarianship	1	
University of Denver, Law Library	2	
University of Montana	1	
University of Washington	1	
Other Libraries		9
Adolph Coors Library; Golden, CO	1	
Billings Public Library	1	
Boulder Public Library	1	
Denver Post	1	
Durango Public Library	1	
Linda Hall Library; Kansas City, MO	2	
National Center for Atmospheric Research; Boulder, CO	2	
Miscellaneous Sources		24
Action for Eastern Montana	1	
American Dental Association	1	
American Hospital Association	1	
American Institute of Accountants	1	
Denver General Hospital	1	
Denver Research Institute	1	
Denver Zoo	1	
Institute of Human Resources; Albuquerque, NM	1	
International Business Machines; Wichita, KS	1	
Jones & Jones Law Firm; Powell, WY	1	
Marketing Research Office; Canadian Government, Ottawa	1	
Miller Brewing Company; Milwaukee, WI	1	
The Milwaukee Road; Chicago, IL	1	
National Crime Institute; Washington, D.C.	1	
National Minerals Association; Washington, D.C.	1	
National Speleology Association	1	
PUSH; Chicago, IL	1	
Rapid City, S.D. phone book	1	
Restaurant owner; Denver, CO	1	
Solar Energy Information Center, Rockville, MD	1	
Solar Energy Research Institute, Golden, CO	1	
Squibb, Inc.	1	
Taco Hut, Inc., Tulsa, OK	1	
World Health Organization	1	

Total Unique Sources = 77 + computerized data bases

116 transactions never answered. 819 transactions sources
23 sources not identifiable.

Summary of the telefacsimile contribution to an information delivery service:

Telefacsimile provides at least three tangible and perhaps one psychological benefit in any telefacsimile transaction.

1. Time is saved in forwarding the request for information to the information resource node;

2. Time can be saved if telefacsimile can be utilized in the location of the materials;

3. Time is saved in the delivery of the material to the requesting library for pickup by the user; and

4. Because the telefacsimile request implies the need for speed, it could provide a psychological priority to the request.

In evaluating the above benefits over conventional delivery (mail), it must be kept in mind that the actual process of information retrieval is still dependent on human factors. If the reference librarian, operating at maximum efficiency, requires seven working days to locate and retrieve a piece of information, telefacsimile can only speed up the starting date, perhaps aid in locating the material and speed up the delivery. It is quite likely that the time required to locate and retrieve the information will stay close to seven days. Telefacsimile therefore cannot be expected to shortcut or bypass the function of the research librarian but only serve as a tool which speeds the final delivery.

9. COST ANALYSIS

Start-Up and Operational Costs

The following cost figures represent all TALINET project costs and therefore do not accurately reflect in any of the three categories (Installation, Trial Operations, or Demonstration) the true operational costs of an ongoing telefacsimile system. Elements which are shown on the following tables which would not be a part of an operational library telefacsimile system are as follows: (Please refer to Table 9-1, Cost Summary)

Category 1 - Equipment purchased or leased. For this Project three pieces of equipment were leased for each site for product comparison. In an operational mode only one piece of equipment is necessary.

Category 2 - Communications. These figures totaling $5650 represent the telephone line charges (mostly long distance) for the entire project. The figure $1771 for the period December 20, 1978 to March 15, 1979, most closely represents actual costs of a facsimile service, however there are an estimated 100 administrative calls to Project sites which are included in this figure.

Category 3 - Space. The space needs are related directly to the TALINET Project. An operational library telefacsimile service would require space for equipment but the equipment would most likely be placed in existing space with costs prorated only in determining actual costs of the service.

Category 4 - Labor. As a project, the labor needs exceed what would be necessary to maintain an ongoing system. A minimum ongoing system the size of TALINET would probably require 20 percent of one person's time for supervision and two FTES for reference activities for an estimated salary expenditure of $5,000, $7,000, and $9,000 for a total of $21,000 per year.

Category 5 - Programming Software. Monies expended in this category were 90 percent TALINET project-oriented. Ten percent of this amount might be spent in an operational system.

Category 6 - Miscellaneous. Travel was 90 percent TALINET project-oriented. NOAA expenditures were 100 percent TALINET related. Tuition was 100 percent project related and would not be a part of an ongoing operation.

Other costs which would likely be incurred in an ongoing operation and which were not a part of the TALINET Project are; overhead for space, light, heat, etc.; record keeping for services rendered and billing for these services; organizational fees, amortization, depreciation, etc.

TABLE 9-1

COST SUMMARY

Cost Categories	Time Periods	Installation and start-up from 1/15/78 to 9/11/78	Trial Operation from 9/11/78 to 12/20/78	Demonstration from 12/20/78 to 3/15/79	Institution-alization from 3/15/79 to 9/15/79
1.	Equipment (purchased or leased)	$10,080.00	$24,120.00	$ 9,900.00	---
2.	Communications and computer services (purchased or leased)	1,852.00	2,027.00	1,771.00	---
3.	Space provided through overhead 800x $5.00 = $4,000	2,664.00	1,332.00	1,332.00	---
4.	Labor (administrative, operating)	25,225.00	11,904.00	11,796.00	---
5.	Programming/software	2,470.00	5,120.00	2,138.00	---
6.	Miscellaneous - Travel	4,275.00	8,271.00	1,445.00	---
	- NOAA	5,000.00	15,000.00	6,000.00	---
	- Tuition	4,018.00	5,563.00	6,091.00	---
	- Other	6,193.00	7,008.00	2,540.00	---
	TOTAL COSTS	61,777.00	$80,345.00	$43,013.00	---

TABLE 9-1A

COST DETAIL OF CATAGORIES IN COST SUMMARY

1. Details on major equipment items and costs:

Qwip telefacsimile	$ 40 per month X 6 sites X 8 mos.	= $ 1,920.00
RAPIFAX telefacsimile	$300 per month X 6 sites X 7 mos.	= $12,600.00
Slow Scan T.V.	$960 per month X 6 sites X 5 mos.	= $28,800.00

2. Details on communications:

Telephone service and long distance charges:
January 15, 1978 - March 15, 1979 = $5,650.00

3. Details on programming and software expenses:
Materials development, research design, site materials for marketing, research, and community analysis.

Installation and start-up	$2,470.00)	
Trial Operation	$5,120.00)	TOTAL: $9,728.00
Demonstration	$2,138,00)	

4. Details on other space required and used but not paid for:

Space at NOAA - 400 sqft - 10 mo.	400 sqft
Space at each site library (approx. 100 sqft) 5 sites @ 100 sqft	500 sqft
Graduate School of Librarianship 200 sqft	200 sqft
Total:	1100 sqft

5. Details on labor required and used but not paid for (man hours) :

NOA - GRA Staff Training	320 hours
NOAA - Machine Operator (9 mo.)	1440 hours
5 Site Libraries (5 x 9 mo. x 160 hours)	7200 hours
Total:	8960 hours

6. All labor on Project: 10 % Administration
90 % Operations

TABLE 9-2

USAGE--NUMBER OF TRANSACTIONS BY TIME PERIODS

Measures of Operating Volume / Time Periods	Installation and start-up 1/15/78-9/11/78	Trial Operations 9/11/78-12/20	Demonstration 12/20-3/15/79	Institution-alization
Measure #1 - Project Information Transactions	---	Actual 674	Actual 284	--- ---
Measure #2 - Project Administrative Transactions	Estimated 70	Estimated 120	Estimated 100	Estimated 120

Cost Sensitivity

A detailed cost analysis was made of the telefacsimile delivery of information products generated by TALINET. This was the primary area of cost effectiveness concern. Only limited cost analysis was made of the service aspect per se. Cost data for delivery was derived from actual costs incurred for all transactions performed. Cost data for service was derived only from the random sample drawn as explained in Sections One and Eight. This sample, while representative of users, was not necessarily representative of the transaction population; cost figures derived from the sample are therefore more in the nature of indicators than true costs. These characteristics of the reported data should be kept in mind throughout the following discussion.

The random sample of 32 transactions occurring during the Demonstration Phase included 13 Literature Searches, 12 Reference Requests, and 7 Interlibrary Loans. These transactions yielded the following average costs: $39.30 for Literature Searches; $9.87 for Reference Questions; and $5.74 for Interlibrary Loans. These costs include: staff time (predicated at $10.00/hour for professional staff for Literature Searches and Reference and $5.00/hour for clerical staff for Interlibrary Loans), search charges (for computer-based searches), photocopy charges, and other direct costs (such as phone calls, postage for materials, etc.) They do not include: allocation of supply costs, allocation of such overhead costs as power, equipment depreciation, facilities or fixed overhead.

Cost analysis of telefacsimile delivery of materials is based on the "average" transaction. For services delivered by TALINET, the "average" transaction was six pages in length, including the covering Response Form to identify the material. Costs included in analysis are: equipment lease charges, direct supplies, telephone line charges, and staff time. Equipment lease charges used are GSA rates actually paid by TALINET: $40/month for Qwip 1200 and $280/month for Rapifax. Supply costs are 12 cents/page for Qwip 1200 and 5 cents/page for Rapifax: Line charges are site-specific, but all are based on daytime direct dial rates. Staff time is predicated at $5.00/hour for clerical staff to operate the equipment. In the present analysis, telefacsimile is viewed as an alternative mode of performing a necessary activity--document delivery. Accordingly, only incremental costs are considered. On this basis, unit costs of telefacsimile delivery of TALINET services are as presented in Table 9-3.

Overlay of the graphs included in Appendix D or manipulation of the formulae in Table 9-3 will show the breakeven points where traffic volume makes the unit costs of Qwip and Rapifax equal. Below this breakeven volume, Qwip 1200 will be less expensive and above this breakeven volume, Rapifax will be less expensive. These breakeven points are provided in Table 9-4. (Note: All calculations rounded to the next highest number of transactions).

TABLE 9-3

UNIT COSTS FOR TELEFAX DOCUMENT DELIVERY

MONTHLY COST FORMULAE

Qwip 4-minute Mode	Qwip 6-minute Mode	Rapifax (High Speed)	Rapifax (Standard Speed)	Rapifax (Fine Detail)
$240+$16.06x	$240+$22.14x	$1680+$2.13x	$1680+$3.40x	$1680+$4.25x

(Fixed costs include five sites plus resource mode at $40 for Qwip and $280 for Rapifax. Unit costs for a 6-page transaction are determined on the basis of the highest line charges between any two sites in a 6-site system. x = number of transactions.)

AVERAGE MONTHLY COSTS
(Actual TALINET Average)

At 137 transactions per month:

	Site Average Costs	(Unit Costs per 6 page Transaction)
Qwip 4-minute mode	$\frac{\$2361+\$240}{5}$ = $488/month	$\frac{\$2601}{147}$ = $17.69
Qwip 6-minute mode	$\frac{\$3255+\$240}{5}$ = $623/month	$\frac{\$3495}{147}$ = $23.78
Rapifax (High Speed)	$\frac{\$1680+\$313}{5}$ = $403/month	$\frac{\$1993}{147}$ = $13.56
Rapifax (Standard Speed)	$\frac{\$1680+\$500}{5}$ = $445/month	$\frac{\$2180}{147}$ = $14.83
Rapifax (Fine Detail)	$\frac{\$1680+\$625}{5}$ = $487/month	$\frac{\$2305}{147}$ = $15.68

TABLE 9-4

MONTHLY BREAKEVEN VOLUME AND APPROPRIATE UNIT COSTS
PER 6-PAGE TRANSACTION--QWIP 1200 VS RAPIFAX 100

	Rapifax Hi Speed	Rapifax Standard	Rapifax Fine Detail
Qwip 4-minute mode	104 trans @ $18.37	114 trans @ $18.17	122 trans @ $18.03
Qwip 6-minute mode	72 trans @ $25.48	77 trans @ $25.26	81 trans @ $25.10

(Please Note: Volumes and unit costs determined on basis of 6-node system as employed by TALINET)

For purposes of comparison, the recently inaugurated Express Mail Service should be mentioned. The U.S. Postal Service does provide such Express Mail Service between Denver and three of the sites--Billings, Casper, and Rapid City. For 24-hour hand delivery of mail less than one pound in weight (virtually all of TALINET document deliveries), the rates charged are $7.50 to Casper and $7.55 to Billings and Rapid City. This service is closely competitive with telefacsimile. Only one request received during the Demonstration Phase could not possibly have been processed in the time needed and only an additional 8.5 percent of requests would have arrived after their stated deadlines. Also, this service would permit direct delivery to the patron, rather than intermediate routing through the local library. For virtually all transactions handled by TALINET, Express Mail Service is price competitive with Qwip, being at least $8.51 cheaper per transaction to Billings and Rapid City and at least $8.56 cheaper per transaction to Casper. Rapifax transmission, on the other hand, could provide savings of between $3.25 and $5.42 per transaction over Express Mail, if transaction volume requirements are met. (These cost savings are based on variable direct costs for telefax delivery only. Sufficient traffic is assumed to absorb fixed costs. Savings would be less as volume diminished.)

The results of analysis of breakeven volume and unit cost for Express Mail Service as an alternative to telefacsimile is provided in Table 9-5. Because Qwip costs always exceed Express Mail Service costs for the sites examined, only analysis for Rapifax is presented. Below this breakeven volume, Express Mail Service is less expensive while above this breakeven volume, Rapifax is less expensive.

TABLE 9-5

MONTHLY BREAKEVEN VOLUME AND APPROPRIATE UNIT COSTS
PER 6-PAGE TRANSACTION--RAPIFAX 100 VS EXPRESS MAIL

	Rapifax Hi Speed	Rapifax Standard	Rapifax Fine Detail
Express Mail	207 trans @ $7.55	270 trans @ $7.55	340 trans @ $7.55

(Please Note: Volumes determined on basis of 4-node system. Dodge City and Durango omitted due to lack of Express Mail Service. $7.55 represents highest Express Mail rate to remaining sites.)

Cost Sharing Projections

The potentials for sharing the costs of an operational telefacsimile information service should include the following:

- Patrons
- Library
- State
- Multistate
- National
- Private Enterprise
- Other

Patrons: Information gathered in the TALINET Project indicates that most patrons would be willing to assume the cost of a TALINET-like service or be willing to share in the costs.

Library: Patrons who did not think they should pay indicated that providing information service should be a library function and therefore the library should pay for the service or pay the largest percentage of costs.

State: In some situations states do provide an information service to member libraries and therefore a total subsidization by the state, a sharing formula with libraries or library and patron becomes an option.

Multi-State: There are a number of multi-state library service agencies who could provide a TALINET service on a flat fee basis. These service agencies currently finance their services on this basis and a telefacsimile service could be an add-on.

National. A national subsidization could make an operational system feasible by providing the Federal Telecommunications System to libraries, by subsidizing the reference information portion of commercial telephone charges to libraries or by subsidizing a total reference service.

Private Enterprise. A private enterprise equipment venture might be the combining of a copier with a telefacsimile machine. Patrons would continue to pay for copying on a per page basis as they now do and in the process subsidize a telefacsimile for the library.

Other. Along the Eastern seaboard there is currently a move to organize public service organizations in order to purchase large blocks of telephone service time and resell telephone service to members at a rate of 25 percent to 50 percent below commercial telephone rates. This is in fact a brokerage of telephone time to a consortium of public service agencies. Any one of the above or combination of the above cost-sharing projections would immediately make telefacsimile an attractive cost beneficial library service.

Technological Add-ons

During the year of the TALINET Project there were a number of technological advancements that could affect the implementation of a successful operation.

TALINET has leased a 2-minute Qwip for an additional three-month trial period. This piece of equipment has the potential of reducing both telephone charges and personnel time. This one technology advancement brings telefacsimile closer to the threshold of economic feasibility for the delivery of library information

Other technological advancements which hold promise are several facsimile models which operate machine-to-machine thereby reducing personnel time, a machine which batches copies from a facsimile machine and then sends machine-to-machine over telephone lines at 25 seconds per page thereby further reducing long distance telephone charges and making the low cost two to six-minute machine comparable in speed to much higher cost facsimile machines.

The manufacturer of the Slow Scan television which was tested in TALINET has now developed a smaller, more efficient model that may be more adaptable to library use. A telefacsimile book copier has been demonstrated. A machine which can store print material on video tape (one page per two frames), transmit the image via telephone, and retrieve on a CRT or in hard copy now exists in a prototype model.

Satellite Communications

While TALINET was concerned with narrow band transmission, satellite telefacsimile can be transmitted at 2-3 seconds per page. At $100 per hour for public service satellite time, a national information resource center serving state or multi-state nodes makes a national information system an economically feasible possibility.

Free Versus Fee

Controversy continues to surround the application of fee structures to the provision of tax-supported information services. Without taking a stand one way or the other on the desirability of user fees, TALINET did examine user response to the actual costs of information services and their willingness to pay these costs. The sample of end-users interviewed at the end of the Project was asked to appraise the value of the information provided--was it worth what it cost?--and to indicate their willingness to pay those costs. (Costs quoted to users included the costs of telefacsimile transmission). 62.5 percent indicated the information provided was worth what it cost; 72 percent said they would be willing to pay all or part of those costs; 41 percent indicated a willingness to pay full cost, while $10-20 was the cut-off point for most others. Examination of responses by type of transaction yields some interesting results.

Of those patrons interviewed who had received Interlibrary loans, 72 percent indicated the material recieved was worth the quoted cost and that they would pay all or part of those costs. Four (4) individuals would have paid the full cost, while one individual gave $10 as the cut-off point. Of greatest interest is the remaining 28 percent who did not feel the information was worth the cost and would not have paid. These users expressed the sentiment that search and delivery activity should not be charged; if the material was in a library--any library--it should be freely available to them. The only costs they would have paid were photocopy charges.

Requestors of Literature Searches largely felt that the service provided was fairly valued. Sixty-four percent said what they received was worth the quoted cost; two patrons felt the quality

of the services provided did not merit the costs attached, while two others indicated that the question asked was just not that important. This latter observation may have implications not just for the design and application of fee structures, but also for the general provision of information services. How much of the information services currently provided by public libraries are actually worth the costs of providing them? Of the Literature Search patrons 78.5 percent expressed a willingness to pay all or part of the quoted costs. Fifty percent would have paid full cost, while $10-20 appeared to be the cut-off point for the others. One patron interviewed reported inability to pay as the reason for not valuing the service at cost.

Those patrons who asked Reference Questions were the least likely to value the service provided at quoted costs. Only 50 percent indicated the services provided were worth the quoted costs, while 58 percent expressed willingness to pay all or part of the costs. Of the 50 percent who did not attach a value to the services provided equal to the actual cost, all expressed the feeling that they could have found the answers themselves for less cost. The magnitude of this sentiment gives some indication of the public perception of librarian skills. These persons appear to place a limited value on information seeking and gathering activities.

The situation is remarkably different with the small sample of decisionmakers interviewed. These individuals all indicated that the services provided were worth the quoted costs and expressed a willingness to pay the full extent of those costs.

In evaluating the statements of patron willingness to pay, it should be kept clearly in mind that these statements were all made after the patrons had the results of TALINET services in hand. These are speculative statements made regarding services already received for free. Also, several patrons commented that they would have hesitated or refused to commit for payment at the time the requests were made; only when the results were in hand and evaluated was a willingness to pay achieved.

Cost-Effectiveness

While it is difficult to determine and quantify the ultimate benefit of any information service, one approach to cost-benefit analysis is particularly relevant to telefacsimile delivery of information. Previous studies of telefacsimile application to library use have remarked consistently on the high cost. The TALINET demonstration, while revealing that those costs are declining, has neverthless reconfirmed that telefacsimile is not inexpensive. Further it is readily apparent that the chief advantage of telefacsimile is the time-saving factor.

A particularly useful approach to cost-effectiveness analysis for telefacsimile application to information delivery examines only the library environment. The critical factors in this analysis are: 1) Time demand for information (deadlines); 2) Actual Service Times; and 3) Transaction costs. The format of the suggested analysis can be employed in any multi-library setting, using the values of the three factors unique to that setting.

Every request for information services processed by a library or a library network or system incurs costs for that processing. Most libraries or library cooperatives have or can identify these costs and determine an average unit cost for each type of transaction.

Every request for information that reaches the user later than the last real usable date represents wasted resources. The costs of processing such a request represent a real monetary loss to society--funds expended in a non-productive fashion. Sound financial management suggests that such losses should be either eliminated or reduced to the lowest possible level. It further suggests that an organization can spend up to the amount of the incurred loss to reduce or eliminate the loss. In the public sector, such monies expended in an effort to eliminate the "loss" nature of other expenditures will naturally result in an overall increase in total expenditures. Society as a whole, however, analogous to the private, for-profit organization, will experience "breakeven" or an overall savings as a result of such expenditures.

On this basis, the final cost-effectiveness analysis proceeds in the following manner. Cost figures from the TALINET Project are used for illustration:

1. Determine the average cost per transaction. For a networking operation that involves more than one type of transaction, the overall weighted average can be determined by use of the formula:

$$A_o = \sum_{i=1}^{n} [(\text{Average cost/transaction } i)\ (\text{Total \# transactions } i)] \div \text{Total \# of all transactions}$$

Where A_o = overall average of each type of transaction

For TALINET this is:

A_o = [($9.87/Reference) (248)+($5.74/ILL) (503)+ ($39.30/Literature Search) (207)] ÷ 958 total transactions.

A_o = $14.06

2. Determine the average variable telefacsimile cost per transactions.

For TALINET, the highest average variable costs were: $22.14 and $16.06 for Qwip in the 6- and 4-minute modes respectively, and $4.25 $3.40, and $2.13 for Rapifax in the Fine Detail, Standard, and High Speed modes respectively.

3. Determine potential cost savings by using telefacsimile delivery.

$CS = A_o - T_x$, where CS = Cost Savings, A_o = Overall average cost of transactions and T_x = Average telefacsimile variable costs.

For TALINET, at highest values of T_x, CS equals <$8.08> and <$2.00> for Qwip, and $9.51, $10.66, and $11.93 for Rapifax.

4. If steps one through three reveal no positive potential cost savings, determine A_o & CS for a different package of services. For example, for TALINET, A_o = $22.82 for Reference and Literature Searches, and CS is positive in every case.

5. Determine the traffic volume required to break even; i.e. required volume for total expenditures on telefacsimile delivery are equal to costs of processing requests that would otherwise be worthless.

$B = F_c/CS$, where B = Breakeven volume; F_c = Fixed cost for equipment--either lease charges or amortization of purchase; and CS = potential cost savings per transaction.

For TALINET, using figures from Step three above,
B = $560/$9.81 = 57 transactions per month, Rapifax Fine
B = $560/$10.66 = 53 transactions per month, Rapifax Standard
B = $560/$11.93 = 47 transactions per month, Rapifax High Speed
(Note: $560/ = monthly GSA lease for two machines. All values for B rounded to next highest number).

6. From library records, either by sample or census, determine if the number of requests arriving too late to be useful because of delivery delays meets or exceeds the value of B.

If so, telefacsimile delivery is a cost-effective delivery mode for the specific library cooperative in the long run.

10. BARRIERS TO UTILIZATION AND IMPLEMENTATION

As might be expected in the application of any new technology, the TALINET demonstration identified a number of barriers which could become a hindrance to utilization and implementation of TALINET as an operational system. These include psychological barriers, technical and equipment problems, organizational and institutional barriers, problems of collaboration with other institutions, regulatory and legal problems, staff training and situational and geographic barriers.

Psychological Barriers

In the introduction of any new technology there is a need to be aware of feelings of distrust and apprehension on the part of the new users. For this reason the telefacsimile equipment was installed early and ample time was given for training and practice to dispel personal feelings of apprehension. The training on the equipment was generally adequate and the interaction between site personnel and GRAs prior to the operational periods created feelings of assurance and acceptance of the equipment.

Technical and Equipment Barriers

The operation of the equipment as discussed in Section 4 did not pose any real barriers. The limitations of the equipment do pose barriers for library operations. The most obvious barrier is that none of the three pieces of equipment are designed to be used with bound material. This then requires that material be photocopied before it can be sent by facsimile. The Slow Scan Television required that less than a full page be sent in order to achieve good legibility and resolution.

When using photocopied material, site and TALINET staff recorded more "poor copy" with Qwip than with Rapifax. Most of the problems were with 6-point type or smaller.

Organizational and Institutional Barriers

In each of the five states involved in TALINET, there are different sets of informal and formal arrangements for the cooperative exchange of information. In most states the State Library is the focal point for service arrangements, though there are public, academic, and special libraries who are not a part of these arrangements and exist independently because of size, financial capabilities or special interests.

In putting the TALINET Project in place, even on an experimental/ demonstration basis, and by designating libraries within a fifty-mile radius as those eligible to receive services, several "turfdoms" were violated. The official and unofficial agreements which exist in cutting-up the geographical library pie are barriers which are real in terms of territory, and must be addressed before a compatible operational telefacsimile service could exist.

There are two regional organizations which provide library services, primarily bibliographical services, to the states involved in TALINET. These are the Bibliographical Center for Research (BCR) and the Pacific Northwest Bibliographic Center (PNBC). These organizations have established coordinating credibility, have a large member library constituency, and have largely avoided the turfdom issue.

It is important in the implementation of a service that no existing agreements be overlooked or ignored. Though the service may be very feasible, it must be sold originally as a service which augments or supplements, but does not substitute for existing arrangements.

Collaboration with Other Institutions

To maximize the opportunity for success in implementing an operational telefacsimile service, a wide variety of institutions should be involved. At the community level, a community analysis will identify a number of agencies and institutions which could become partners or users of the system. Since one of the bases for TALINET was to provide informational services to meet local needs, it is important to identify and serve as many users as possible. One of the factors that brings down the fixed costs per transaction is volume. It is therefore important to market the service locally, broadly, and efficiently.

On a widening geographical basis, regional in-state library systems become very important as do larger public libraries, academic libraries, government and special libraries. Consideration should be given to each as a resource, user, or both and a determination should be made as to how each could or should fit into an ongoing operational system.

On a state and regional basis, the State Libraries, Federal depositories, and multistate organizations such as BCR and PNBC, could become important centers of operation or information hubs which feed information services to regional nodes and to additional multi-state service organizations.

On the national level, the Library of Congress, National Library of Medicine, and the network of Federal Libraries become important as resource centers and as organizations having the resources and power base to establish larger networks. The yet to be implemented National Periodicals Center is the kind of institutional collaboration that could perhaps utilize telefacsimile in a cost-effective manner. Beyond the operational institutions are the local, state and national library associations, the county, state and congressional committees working on library problems, and a number of Federal agencies such as Health, Education, and Welfare; United States Office of Education, National Institute for Education, National Science Foundation and National Endowment for the Humanities. Each of these wield an influence on library and information management developments and should be considered as new networking arrangements are developed.

Regulatory and Legal

One of the greatest barriers to full implementation of telefacsimile is the impact of the copyright law.

Telefacsimile has the capability of moving large amounts of print material (e.g. the daily telefaxing from the West Coast to Denver via satellite of the Wall Street Journal page mats for Denver

printing and distribution.) This is a fast, cost efficient, and apparently successful use of technology which might be duplicated for a number of library applications if copyright restrictions can be effectively managed. The restrictions are largely a management problem requiring adequate record keeping and mechanisms for compensating persons or agencies holding copyright.

Situational and Geographic

Factors which become important barriers in the situational and geographic areas are: demography, size of community, volume of transactions, economics of the area, ecomomic fluctuations, geographical remoteness, terrain, weather, transportation, and communication availability.

Many of these factors are interrelated and cannot be considered in isolation, but all could bear on the feasibility of instituting a cost-effective facsimile service. Demography is an important factor; if a community population has a low overall educational level or displays other factors related to low library usage, the volume of transactions will likely be very low. Size is another factor, since the community must be large enough to provide sufficient volume to be cost effective. How the community makes its living is important as information needs are related to occupation and economics. Economic fluctuation is also a factor since an information service is a year-round operation and cannot be dependent, for instance, on activity generated by the tourist industry. Geography is important since terrain, weather, roads, and communications affect library usage and are directly related to costs of providing a service to remote areas.

11. PRINCIPAL BENEFITS AND FINDINGS

The following are the principal benefits and findings derived from the TALINET Demonstration.

General Benefits

TALINET accomplished the following:

1. Provided information resources and services to 356 individuals and 35 libraries--other than the site libraries--that would otherwise have been unavailable or available only in a longer time frame;

2. Increased awareness of library resources on the part of library users and previous non-users alike in each site community and its surrounding area;

3. Established current "benchmark" figures for the importance of time to users of small public libraries;

4. Upgraded the skills of Reference staffs in the five site libraries for determining, analyzing, and communicating information needs of patrons;

5. Increased awareness and knowledge of Reference staffs in the five site libraries regarding local and extra-local resources for meeting information needs of their patrons;

6. Established current unit costs of application of Qwip 1200 and Rapifax 100 to the library environment;

7. Derived a theoretical base for making practical determinations of the cost-effectiveness of telefacsimile application to library services;

8. Determined current levels of reliability, capability and acceptability of contemporary telefacsimile technology as employed in a library environment;

9. Provided financial assistance to permit six professional librarians to pursue Advanced Studies;

10. Provided an Advanced Studies program with a meaningful interaction between classroom learning and professional experience.

Specific Benefits

1. The Rapid City Public Library completed a community analysis;

2. The Dodge City Public Library actualized their mission to serve as a Reference Referral Center for the Southwest Kansas area;

3. The new Director of the Durango Public Library derived information for materials selection and for planning future information services from TALINET operations in that community;

4. TALINET provided a 2 hour turnaround of medical information to a Rapid City surgical team which prevented an unnecessary amputation;

5. TALINET provided information to the City Manager of Dodge City, Kansas, regarding a proposed methane gas process. He stated that the information helped the City Council arrive at a decision which probably saved the city $5-6 million.

Findings

1. There were 958 information requests forwarded to TALINET which could not be answered with the resources of the local site libraries;

2. Two hundred and sixty eight or 28 percent of these requests were time-critical and the materials would have been less useful to the end user if telefacsimile had not been used;

3. During the TALINET demonstration 20.5 percent of the users of the system were new users of the local libraries;

4. Seventy percent of the users became aware of TALINET as a result of the marketing efforts;

5. Telefacsimile as used in the TALINET Project is an effective means of delivering hard copy as evaluated by the site library staffs and the end-users;

6. The Rapifax 100 was preferred by site staffs over the Qwip 1200. They felt the Rapifax provided more consistently readable copy. Rapifax was less expensive at the monthly volume of transactions experienced in TALINET;

7. Seventy-eight percent of the end-users found telefascimile copy acceptable and showed no preference for copy from either Rapifax or Qwip;

8. The Slow Scan Television equipment, in the configuration used in TALINET, does not adapt to library usage;

9. Telefacsimile delivery is still more costly than conventional mail and matches Express Mail (where available) when the monthly system volume of transactions reaches 207 for high speed Rapifax and 270 transactions for conventional speed Rapifax. This is based on daytime telephone rates and 24-hour Express Mail delivery.

10. A willingness to pay all of part of the costs of the information received was indicated by 58 percent of those asking reference questions, 78.5 percent of those requesting literature searches and 72 percent of those receiving interlibrary loans;

11. The decision-makers who were polled (seven) were unanimous in that they would have been willing to pay all costs for the services received;

12. Deadlines stated by patrons may frequently be more psychological than practical. Seventy-five percent of the TALINET users interviewed whose deadlines were missed stated the information would not have been more useful if received earlier. Materials supplied by TALINET frequently remained at the site libraries for extended periods after the patrons were notified of its availability;

13. "Personal services" is perhaps as important in providing network service as in providing patron service at the local level. Nearly all site staff participants commented that they felt more inclined to send requests to people they knew than they would through an impersonal bureaucracy;

14. Expanded marketing techniques--especially direct mail and personal contact--may offer good potential for encouraging library use. Seventy percent of all TALINET users became aware of the Project through TALINET marketing efforts;

15. The Federal Library Network was a minimal resource to the five TALINET public libraries. This may be attributed to three factors: (1) lack of a union catalog of FLNPP holdings and consequent uncertainty as to what those holdings might be; (2) low user demand for specialized scientific/technical materials that were not readily available elsewhere; and (3) late start.

16. Multi-state library networking can reduce the information-isolation felt by librarians and citizens in small communities in rural areas.

17. The combination of practical work experience with academic study offers good potential for advanced education in librarianship and information management;

12. FUTURE DIRECTIONS

TALINET should not be considered a final destination but rather as a timely leg on the journey toward making telefacsimile a library delivery tool.

TALINET was a timely demonstration for several reasons: 1) Development of telefacsimile equipment is moving very rapidly and it is important to library information managers to have current data on delivery alternatives; 2) The potentials of combining facsimile with other technologies, such as satellite communications, are currently feasible and provide new dimensions and scales of economy for the cost effectiveness equations; and 3) There is a growing interest on the part of government to utilize telecommunications in the solution of social problems and the delivery of services. The last point is perhaps a "keypoint," for a national initiative on the part of the Federal government to make information (which is a national resource) available to everyone, would accelerate the evolutionary process tremedously.

INSTITUTIONALIZING A TALINET SYSTEM

Requirements of an Operational System

A successful operational system should have the following characteristics:

1. A central resource library with extensive reference resources;

2. Access via telefacsimile to additional reference resources such as Library of Congress, Federal Library Network, Computer-based references, etc;

3. A staff dedicated solely to servicing the system or with top priority to the system if traffic does not warrant full-time staffing;

4. Availability of in-state and out-of-state Watts lines or access to the Federal Telecommunications System;

5. Agreements with participating libraries for a fee structure which covers system expenses;

6. A telecommunications capability for interfacing with a variety of facsimile equipment;

7. Sufficient reference traffic and a large enough system to cover fixed costs and bring the unit costs below any other comparable delivery mode;

8. An ongoing research and marketing effort to maintain efficiency and an evaluation of needs of participating members.

Planning for Institutionalization

TALINET has received a 6-month follow-on grant to pursue the institutionalization of a TALINET-like system. This second project will be completed September 15, 1979.

Planning for this project will bring together in July 1979, all library Directors of TALINET sites, the Site Coordinators, five State Librarians, the TALINET Advisory Committee and the Executive Directors of the Bibliographical Center for Research and the Pacific Northwest Bibliographic Center.

The meeting agenda will address the final TALINET report and the findings of the Project, a discussion of new technological add-ons that could affect the cost-benefit ratios, identification of resource bases and development of configurations of systems which would be possible in relation to present conditions in the participating states.

Opportunities will be provided for the decision makers in the group to examine interstate system configurations and to reach common understandings of individual state goals and time-lines.

A second meeting is proposed to bring the State Librarians and Executive Directors of the two bibliographic centers together to formalize whatever agreements are indicated and/or to establish time-lines for alternative stages of implementation.

Questions Raised by TALINET for Further Research

1. What types of information requests are truly time-critical? How can this be predetermined with some accuracy? Who has time-critical information needs? How large is the actual market for rapid information services?

2. How does information flow in a community? What are the long-term effects of information and information services and how can these be traced? How can information and information services and their effects be adequately and accurately valued for cost-benefit analyses?

3. What are the long-term effects on a library and a community of performing a community analysis? Does community analysis activity result in a better correlation between library services and community needs?

4. What are the most effective techniques for marketing library services? How can one identify the marketing technique to use when the type of library service to be offered and the clientele to be reached are known?

5. What is, or should be, the role of practical experience and of research activities in advanced library education? To what degree do these activities contribute to the learning process and how do they actually affect subsequent professional performance? What criteria should be used to determine the academic value of such activities for grading and credit purposes?

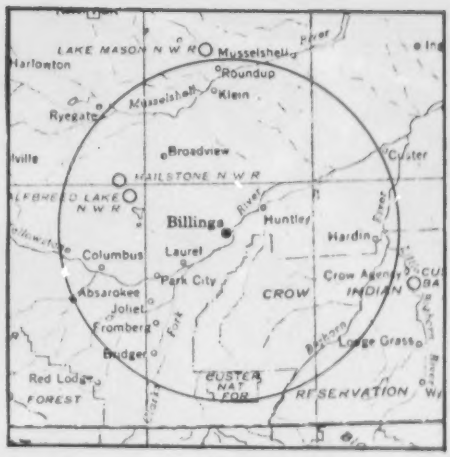
APPENDIX A

SITE DESCRIPTIONS

TALINET Site Description
Billings, Montana

DEMOGRAPHICS

A city with a major role in the rapidly growing Northwest, the population of Billings has increased from the 1970 census figure of 61,581 to an estimated 80,000 in 1978. Current projections are that by 1980 the greater Billings area will have a population of 95,000. Metropolitan Billings encompasses an area of 50 square miles and is the largest city in a 500 mile radius, serving as a distribution, retail, medical, cultural, and entertainment center for over 250,000 people.



Source: USGS

Approximately 8 percent of the city's population is under four years of age, 25 percent between 5 and 18, 59 percent between 18 and 64, and 8 percent are 65 years of age and older. The majority of the people are Caucasion--of Scandinavian, English, German, Russian, or Canadian heritage. Approximately 4 percent of the population is of Spanish origin, 5 percent are American Indian, and less than .05 percent of the population is Black.

According to the 1970 census, 31,724 people--25 and older--had completed four years of high school or more. Almost 16 percent of this age group had also completed four years of college or more. The median number of school years completed for both males and females in Billings is 12.6.

ECONOMICS

Billings is the industrial center for the Northern Rocky Mountain area. Food processing and oil refining are the leading activities with the production of lumber; wool; and concrete, metal, clay, and glass products contributing also to a total of 140 industries.

Wholesale and retail trade, and professional and personal services are also important to the city's economy, and, as the county seat of Yellowstone County, many governmental offices are headquartered in Billings.

The occupations of employed persons 16 years of age or older in the Billings community can be grouped as follows:

Professional, technical, and kindred workers	11%
Managers and administrators, except farmers	13
Sales workers, clerical, and kindred workers	30
Craftsmen, foremen, and kindred workers	11
Operatives, except transport	5
Transport equipment operatives	4
Laborers, except farmers	4
Service workers and private household workers	15
Other	2

TRANSPORTATION

Four airlines--Northwest Orient, Frontier, Western, and Big Sky--offer direct and connecting services to major cities in and out of the state. Two transcontinental bus lines and two railroads, providing both passenger and freight transportation, along with 80 trucking companies make Billings the leading transportation center in Montana. The major highways are Interstate Systems 90 and 94.

RELATION OF SITE TO SURROUNDING AREA

The importance of Billings as a regional center is reflected in the large number of retail stores and offices. The downtown business district is very active, and extensive shopping centers have been established in the western residential districts. Eight banks are located in Billings and function also as correspondent banks for approximately 70 county banks in the trade area.

Two general hospitals, a medical clinic, and several retirement and convalescent homes serve Billings and the surrounding communities with over 195 physicians on the hospital and clinic staffs.

Also located within Billings are two 4-year colleges, a business college, a vocational/technical training school, four beauty colleges, a school of auctioneering, four flying schools, and an X-ray technology school.

LIBRARY--HISTORY, GOVERNANCE, SERVICES

In 1902 Frederick Billings founded the public library in Billings and named it in memory of his brother Parmly. The original building is now the home of the Western Heritage Center, dedicated to the preservation of Western artifacts and paintings. Since 1969 Parmly Billings Library has occupied the basement and first two floors of a former furniture building, attractively remodeled for library purposes.

Responsible to both the City Council and County Commissioners, the Parmly Billings Library Board consists of three citizens appointed by the Mayor and two appointed by the County Commissioners. Most of the funding for the library comes from city and county tax levy allocations. It has also been the recipient of LSCA grants and is paid on a contractual basis for services to other public libraries in the South Central Federation. Total funding for the 1979-1980 fiscal year is $837,000.

As a member and the headquarters for the South Central Federation of Libraries, the Parmly Billings Library serves six public libraries in Yellowstone, Carbon, Musselshell, Golden Valley, and Big Horn Counties, and two libraries in Fergus County. The major activities of Parmly Billings Library include the following: the circulation of books, phonograph records, pamphlets and picture files, and framed pictures; rental use of a 16 mm film library; bookmobile services; a mail-a-book program; service to area nursing and retirement homes; the placement of the library's COM catalog in the bookmobiles, in other libraries in the South Central Federation, and in academic and special libraries in Billings; the opportunity to order and view census records on microfilm; sewing pattern, coupon, and paperback exchanges; the availability of Talking Books and phonograph records through the State Library; the maintenance of small library collections at two branches--one in the outlying community of Worden and one at Casa Village at the west end of Billings; public library service to

three rural schools; and professional consultation services. There is also a special Montana Room on the second floor of the library where a complete view of both past and present aspects of Montana can be obtained through a variety of primary and secondary materials, including many photographs and maps.

Through the Montana Information Network and Exchange loan known as MINE, Parmly Billings Library participates actively both in borrowing from and lending to other libraries in the state. The majority of these interlibrary loan transactions are by teletype to other Federation Headquarters, to the Montana State Library, or to libraries at universities and colleges around the state. For requests not available in-state, the Pacific Northwest Bibliographic Center in Seattle enables the library patron to have ultimate access to extensive resources in other Northwestern states and Canadian provinces.

LIBRARY--STAFF, ACQUISITIONS, CIRCULATION

The staff at Parmly Billings Library consists of 27 1/2 full-time employees. Of these, 10 are professional librarians with Master's Degrees from accredited ALA library schools. The library is open 66 hours a week--Monday through Thursday from 9 a.m. to 9 p.m. and Friday and Saturday from 9 a.m. to 6 p.m.

Reference services are provided to patrons both in the library and over the telephone. Questions, both informational and directional, for the 1977-1978 year increased to 49,335 from 24,540 in 1976-1977. Book circulation for the 1977-1978 year was 420,474. Total circulation for all the libraries in the South Central Federation was 534,375. This is 58,000 more than the 1976-1977 year when the hours open to the public were cut to 54 hours per week.

The acquisitions policy of the library is to buy new books as they are published, based on their relevance to patrons' needs and interests. As the state resource center for fiction, the library purchases extensively in that area. The number of titles in the library as of June, 1978, was 142,952; the total number of volumes in the library was 242,801.

LIBRARY--RELATION TO OTHER AGENCIES, CLUBS, ETC.

Located in the center of the city, two blocks north of the downtown area, Parmly Billings Library is used frequently by businesses, banks, and governmental agencies to obtain addresses, phone numbers, statistics, and other information. As a city/county institution, the library attempts to keep local officials fully informed of its activities and services. Contact is also maintained either formally or informally by the staff with the many organizations and clubs in the area. The meeting rooms in the library are open for public use at no charge and are constantly in demand.

LIBRARY--MARKETING

Concerned about methods of enhancing the library's image and role, the staff carries out a marketing effort through the media and through personal contact with people in the community. Frequent coverage is given to the library in the local newspaper of such special events as exhibits, movies, or lecture series. Two of the staff members are interviewed periodically on radio or television programs for news of the library, and radio spots promoting the library are currently being done on a weekly basis by the head of the reference department.

LIBRARY--ACCEPTANCE IN COMMUNITY

Parmly Billings Library is accepted very well in the community. One strong indication of this has come about since the current director announced his resignation. Numerous letters have been received complimenting his work, and the Billings Gazette has also published several letters expressing appreciation and support for the fine library services in Billings.

OTHER INFORMATION AGENCIES

Other libraries are also a part of the Billings community. In the past, an informal meeting has been held once a year for all area librarians to meet and discuss common concerns and problems. The two colleges, Eastern Montana College and Rocky Mountain College, have collections numbering 103,327 and 52,243 respectively. Reciprocal borrowing has been established with these academic libraries. The library at Eastern Montana College is a partial depository for government documents and has an extensive education collection to support the school's curriculum.

Special libraries include a medical collection at St. Vincent's Hospital; law libraries at the County Courthouse and at the Federal Building; and libraries in the offices of the Bureau of Land Management, Bureau of Mines, and at the Old West Regional Commission.

Information is also available from such sources as the Chamber of Commerce, news services, local museums and art centers, private consulting firms, and county extension offices.

TALINET--INVOLVEMENT OF STAFF

The staff of the Parmly Billings Library has been fully aware of TALINET since the spring of 1978 and were enthusiastic about the extra service being provided to people. Periodic reports were made by the site coordinator at department head meetings with the information then passed on to the rest of the staff at departmental meetings.

At an early date, the full responsibility of the project was given to the site coordinator, for the Director of the library and the head of the reference department were totally involved with implementing the automated circulation system. Another member of the reference department agreed to serve as the assistant coordinator. Both of these site coordinators are full-time professional staff from the reference department.

Most of the direct involvement with TALINET has been in the reference department. The site coordinators instructed two other members of the reference staff to operate the Qwip and Rapifax, but primarily the two coordinators have been responsible for conducting the reference interviews, completing the necessary forms, and transmitting and receiving material. The interlibrary loan department has been involved as a result of additional requests generated by online searching. Through the extension department, the other public libraries in the South Central Federation have been kept informed of TALINET, and various promotional materials have been delivered to them. Other members of the library staff from various departments proved very helpful in directing patrons to the reference department to use TALINET.

TALINET--STAFF CAPABILITIES

Because of temporary shifting of staff during the implementation of the automated circulation system and the Director's requirement that everyone must spend a designated amount of time inputing into the computer, the reference department was frequently staffed by only one person. This meant that at times the site coordinators were not able to transmit or receive materials.

Completing the forms documenting each request was considered very time-consuming and boring, but the Billings staff has been prompt and conscientious for the most part in sending in completed forms.

A satisfactory interview was generally conducted with the patron. The reference staff's inexperience with online literature searching was primarily responsible for the lack of clarification in some of the first questions sent in. After the TALINET request form was revised in January, detailing specifically the information needed from the patron, it was evident that a more in-depth interview was being conducted.

TALINET--COMMUNITY ANALYSIS

The process of community analysis was explained to the entire staff at Parmly Billings Library by the site coordinator after her attendance at the Community Analysis Research Institute workshop, and there seemed to be a good understanding of what was required. People were selected to assist with the community walk-around but due to summer vacation schedules and additional work demands with the automated circulation system, this step was not carried out. Instead, the emphasis during the summer was to analyze the community in regard to industries, businesses, organizations, and individuals who could benefit from TALINET. An extensive mailing list was compiled, and these potential users received the TALINET brochure and an invitation to attend the September "open house" and see the equipment demonstrated. Many of the regular users of TALINET were contacted at the time of this initial market analysis.

The site coordinators have completed the necessary work with the census figures, but they feel the usefulness of the statistics is very questionable in light of the tremendous growth in Billings since 1970. Current statistics about patrons will be available as soon as CLSI begins operation in June, including information as to where patrons live, their age, education, reading interest, and needs. This data will be of great value and used as indicators of areas of the city and people not being reached by the library.

Completing the entire community analysis process and submitting a final report has thus been postponed. With the resignation of the library's Director, there is the feeling that the opinions of the new Director should be sought regarding objectives of a community analysis in Billings.

EQUIPMENT

Installation of the equipment was handled without problems, except that the site coordinator was not there when the Slow Scan was brought in and therefore, she never felt she thoroughly understood how to operate it. The Slow Scan did work during demonstrations in the fall, but would not transmit or receive images during testing periods in December. It was never used for an official TALINET request.

Other problems that developed included the paper in the Rapifax drying out due to the lack of ventilation in the equipment room. This necessitated having pages sent more than once because of the initial lightness of the copy. The Rapifax was definitely preferred by the staff, however, as the Qwip was considered too slow and its fumes were somewhat offensive in the closed room housing the equipment. The Qwip also required too much of the site coordinator's time away from the reference desk.

USE OF TALINET BY THE COMMUNITY

1. Previous Modes of Answering Questions

The staff estimated that 20 percent of the questions asked at the reference desk require a literature search or an interlibrary loan for a specific book, document, periodical, or microform. When materials are not available locally, the following procedures go into effect: unverified nonfiction requests are forwarded to the Montana State Library where they are either verified and filed or sent on to the Pacific Northwest Bibliographic Center (PNBC); juvenile, genealogy, and periodical requests are sent to the appropriate holding library in Montana or to PNBC; requests for nonfiction monographs which can be verified in Books in Print are sent to the state library; if the book is not in their collection, the transaction is forwarded to PNBC. Health science questions are also answered by PNBC or the Pacific Northwest Regional Health Sciences Library.

Before TALINET services were in operation, all questions requiring a literature search were handled by the staff at the Montana State Library. The State Library accepted other subject requests as well, and currently, if their resources do not match the information needed, the staff is being encouraged to send these subject requests on to PNBC.

2. Users, Non Users

Many of the people responding to TALINET were frequent users of the library who asked the kind of questions at the reference desk that could not be answered in-house or needed materials that could not be obtained as quickly through regular interlibrary loan channels. Some were the moderate library users who happened to hear about the service through the media, from friends, or from the staff at the library. The non users who were brought in during this project consisted of a few professionals who, according to the site coordinators, normally do not think of the public library as a source for technical materials or specialized subject information.

3. Patron Response

During the Trial Operations Phase (11 September-31 December) Billings had 169 transactions.

During the Demonstration Phase (1 January-31 March) there were 96 additional transactions.

Total transactions for the Project at Billings = 265.

By Type of Transactions:

	Trial Operations		Demonstration		Total	
I.L.L.	78	46.2%	66	68.8%	144	54.3%
Literature Searches	48	28.4	18	18.8	66	24.9
Reference	43	25.4	12	12.5	55	20.8
Total	169		96		265	

By Subject Area:

Although there were 265 total transactions, there were only 139 unrelated transactions, i.e., 126 transactions represented additional transactions submitted by patrons in pursuit of a solution to a single "problem."

By subject area, the 139 unique "problems" can be grouped thusly:

Business/Economics	22	15.8%
Medical	21	15.1
Sociology	13	9.4
Energy/Environment	12	8.6
Law/Government/Political Science	12	8.6
Education	9	6.5
Geology	8	5.8
Genealogy	6	4.3
Agriculture	4	2.9
Grants	4	2.9
Other Physical Sciences (4 subject areas)	9	6.5
Other Humanities (5 subject areas)	8	5.8
Other Social Sciences (2 subject areas)	5	3.6
Miscellaneous (general interest)	6	4.3
	139	100.2%

Altogether, there were 29 distinct subject fields represented by the 139 transactions.

User Groups

The 265 transactions were submitted by 101 individuals and three libraries; patrons may be identified as:

Business persons		19	18.3%
Students		14	13.5
Scientists (8 geologists)		9	8.6
Educators		8	7.7
Elementary	4		
High School	1		
College	1		
Administration	2		
Government Officials/Agencies		6	5.8
Local	2		
County	1		
State	1		
Federal	2		

Social Service Agencies	4	3.8
Libraries	3	2.9
Farmer/Rancher	1	0.9
Medical	1	0.9
Attorney	1	0.9
Other (general public)	21	20.2
Unidentifiable	17	16.3
Total	104	99.8%

Excluding the libraries, 30 individuals (29.7 percent) had more than one transaction (City Hall Library had two; Old West Commission Library had two).

Twenty individuals (19.8 percent) had more than one unrelated transaction, ranging from two (12 patrons) to five (1 patron).

The heaviest user was a chemist who requested 26 ILL's on the same topic.

The 139 unrelated transactions were submitted by patrons in the following pattern:

Businesspersons		27	19.4%
Students		18	12.9
Scientists		13	9.4
Educators		11	7.9
Elementary	5		
High School	1		
College	3		
Administration	2		
Social Service Agencies		7	5.0
Government		7	5.0
Local	3		
County	1		
State	1		
Federal	2		
Library		4	2.9
For self	1		
For users	3		
Farmer/Rancher		1	0.7
Medical		1	0.7
Attorney		1	0.7
Other (general public)		30	21.6
Unidentifiable		19	13.7
Total		139	99.9%

Repeat Use

Thirteen literature searches (19.7 percent of total literature searches) generated later ILL requests for citations found.

Eighty-two (56.9 percent of total ILLs) were generated by previous searches performed by TALINET.

Of the 20 patrons who had more than one unrelated transaction, 16 were "return" patrons, i.e., they came to the library with a new, unrelated transaction at some time after their first transaction was processed. Two patrons returned to the library for information on the same topic after receiving some material through TALINET.

In all, 20 patrons (19.8 percent of total patrons) returned for additional service after their first contact with TALINET.

The original target market--energy/environment, business, government (including social agencies) and the scientific community constituted 40.6 percent of actual patrons served, submitted 41 percent of unrelated transactions and accounted for 38.1 percent of all transactions.

SITE STAFF EVALUATION OF TALINET

The staff has been pleased to be able to service patrons in ways not possible before, and they are concerned with the disappointment some users will face when TALINET ends, as information not available locally will take 4 to 6 weeks to obtain through state or regional networks.

Their frustrations with TALINET have been with the time required in filling out forms, the use of Qwip, and having to contact certain patrons more than once to pick up their materials. Any sense of failure is reflected in not attracting use of the Slow Scan and not reaching an even greater number of people in the community who might have benefited from TALINET.

IMPACT OF TALINET

It is difficult to make definitive statements regarding the impact of TALINET in the Billings area as many variables existed in this project. It can be said, however, that the majority of the users were appreciative of the service and do want to have more direct access to resources through an expanded reference network. However, only a small number of users needed information for any decision-making activities, and correspondingly, the decisions were generally not of a time-critical nature or vital to the functioning of the community.

It is thought that people in Billings and the surrounding communities have become more aware of library services in general through the marketing that was done with the news services, the sound/slide show, the brochures, and the posters. Librarians and information specialists in the area have also been introduced to new resources and technologies; thus, an impact was made in regard to their own professional growth and/or desire for additional education in library and information science.

The State Library in Helena was relieved of many requests during the demonstration period that normally would have been sent there. The faster turnaround time through TALINET has made the staff at Helena more aware of their need for additional staff, monies, etc., in order to provide faster services to people in the state.

FUTURE OF TALINET

Because of the cost of the equipment and line charges, the Parmly Billings Library never believed they could continue the services of TALINET on their own. Even if local support was great enough to perhaps lease the Qwip, there has always been the question of who would supply the staff at the other end to answer requests as promptly as TALINET or at least more quickly than the State Library.

Ideally, the site coordinators see a service such as TALINET operated on the state level by a full-time staff. Literature searches and as many reference questions and ILL requests as possible would be handled by this centralized staff with other queries fielded to appropriate resources within a national network.

ACCEPTANCE OF TALINET STAFF

A good relationship was established with the site coordinators, and the GRA assigned to the site felt very comfortable working with people on the Billings staff. Other libraries and information agencies in the area were appreciative of the time the GRA spent contacting them to explain TALINET. Because of the good feelings about the Parmly Billings Library, the GRA's experiences in the community have been very positive.

The initial reaction of the State Library to TALINET was one of skepticism as to what exactly would be done by the service. By visiting with the staff in person, however, many things were clarified and people were better able to view TALINET as a demonstration project that could support existing networks in Montana and possibly lead to the development of additional resource sharing on a regional and national level.

TALINET Site Description
Casper, Wyoming

DEMOGRAPHICS

Size and Location

Casper, Wyoming, the county seat of Natrona County, is situated in the geographic center of the state. Casper lies on the south bank of the North Platte River and has an area of approximately 10.7 square miles. Natrona County has an area of 5,342 square miles making it one of the largest counties in Wyoming and the United States.

Source: USGS

Population

The corporate city of Casper had a population of 39,361 in 1970; a population of 45 669 in 1975. Natrona County's population was 51,264 in 1970; 52,300 in 1975; and 64,359 in 1977. In Natrona County there are 9.01 people per square mile. Projected population for 1979 is 71,000 for the city and county. The increased growth of Casper in proportion to the county growth is due to annexation.

Trends

The population of Casper has grown at approximately 16 percent over the period 1970 to 1975. Since 1975 this trend has accelerated due to the energy boom in Wyoming.

Age

A breakdown in population by age in Natrona County shows 8.8 percent are 18 or younger, 22.7 percent are 19 to 30, 16.3 percent are 31 to 40, 24.8 percent are 41 to 50, 15.5 percent are 51 to 60, and 10.9 percent are 61 and over.

Ethnic

The City of Casper is largely Caucasian. Blacks, Native Americans, and a sprinkling of other minority races make up 1.1 percent of the population.

Natrona County shows a slightly more diverse population than Casper. Of the county's 51,264 residents, 50,419 are Caucasian, 410 Blacks, 220 Native Americans, 37 Japanese, 13 Chinese, and 22 Filipino.

Education

The educational level of the county's residents breaks down as follows: 5.6 percent attained a grade school education, 13.5 percent less than high school; 36.3 percent are high school graduates; 16.1 percent went to one or two years of college; 3.1 percent went to a technical college; 3.9 percent went three to four years of college; 14.2 percent are college graduates; and 7.1 percent have a graduate degree.

ECONOMICS

Major Industries

The exploration, development and refining of oil is Casper's single largest industry with natural gas production following a close second. Three of Wyoming's nine petroleum refineries are in Casper. The mining of uranium is another large industry. Ninety-five percent of the state's uranium reserves are within 100 miles of Casper. Coal is also becoming an increasingly important industry in the area. Although coal deposits are not yet being mined on a large scale it is anticipated that this will occur in the next ten years.

Name	Products	No. Employed
Marathon Oil Company	Oil	554
Amoco Oil Refinery	Oil	300
Texaco Refinery	Oil	260
Little America	Oil (refinery)	260
Exxon Company	Uranium	250-500
Western Oil Tool Mfg.	Steel fabrication	200
Teton Exploration	Mining services	100-250
American Oil	Oil	103
Darenco	Gas (natural)	50-99
Goodmark	Meat snacks	65
Utah International	Uranium	250-500

Agriculture is Casper's third largest industry. Beef and grain farms, and wool production are widespread in Natrona County. Due to the short growing season (130 days) the most common crops grown are alfalfa, oats and barley.

Secondary Industries

Minor industries include tourism, construction, manufacturing and wholesale and retail trade. The scenery, recreation, and historical landmarks in the Casper area are enhancing its image as a tourist spot. To accommodate tourists Casper has many restaurants, 28 motels and four hotels. Construction, manufacturing, and wholesale and retail trade all contribute to Casper's economy. As of 1977 there were approximately 445 retail establishments and 308 wholesale establishments in Casper.

Employment

The Casper work force is comprised of nearly 30,600 persons who work in the following areas:

Mining	18.5%
Retail Trade	16.8
Government	16.4
Contract Construction	9.1
Wholesale Trade	8.6
Trade and Commercial Utilities	6.5
Manufacturing	5.6
Finance, Insurance and Real Estate	4.2
Agriculture	3.0
Unemployed	2.6

Transportation

Interstate Highway 25, U.S. Highways 20 and 87, and Wyoming State Highway 220 intersect Casper. Seven trucking companies, Airland Express, Ross Transfer Inc., Burlington Northern Transport, Uintah Freightways, Consolidated Freightways, Salt Creek Freightways, and International Transport Inc., all serve the area. Casper is a railroad center for Burlington Northern, Chicago and Northwestern. There are six freight trips per day with reciprocal switching.

Casper's airport is just outside of town. It has four runways and serves two airlines, Western and Frontier, with direct connections to Denver and Salt Lake.

Relation of Site to Surrounding Area

Casper is a trade center to the heart of Wyoming attracting people from other parts of Wyoming who do not want to travel to Denver, Fort Collins, Greeley, Salt Lake City, Billings or Rapid City. For example, Casper attracts over 50 percent of the trade from Buffalo, Glenrock, Midwest, Shoshoni, Ten Sleep, and Thermopolis.

LIBRARY

Size

Natrona County Public Library (NCPL) consists of a main building in Casper, a branch in Edgertown--40 miles north of Casper, and a bookmobile. Total holdings for NCPL are 178,765.

Age and History

Natrona County Public Library was founded in 1902 by the local Women's Christian Temperance Union in Casper. The women's group administered the library until November 8, 1903, when the Natrona County Public Library Association was organized. An annual levy of not less than 1/8 mil and not more than 1/2 mil of the assessed value of the county for the establishment and maintenance of such a library was provided by the state statutes, which also provided that the county must own its own building and books. It was also established that the library must be free to the residents of the county. In 1910, after four years of financial and political difficulties, a Carnegie Library construction program was completed and a librarian hired. The library enjoyed a great deal of

support in the years that followed and continued to thrive and grow. In 1929, it was named a selective depository for United States Government Documents. 1971 saw the completion of a new building added to the existing Carnegie building.

Funding

In 1977, annual funding totaled $411,000; $2,000 of which was Federal funds, $409,000 county. Of the $411,000, $60,000 went to operating expenses, $30,000 to books, $4,000 to periodicals, $3,000 to binding, $1,800 to microfilm, $4,000 to Audiovisual, and $235,000 to salaries.

Governance

NCPL is governed by a five-member Board of Trustees appointed by the County Commissioners.

Service Area

The service area of NCPL is 5,342 square miles--all of Natrona County.

Staff Size and Training

NCPL has a staff of 25, six and one-half of which are professional. One day a year is designated as a staff training day. Staff meetings are held once a month.

Operations

The main library is open Monday through Thursday, 9 a.m. to 9 p.m.; Friday and Saturday, 9 a.m. to 6 p.m.; and Sunday 2 p.m. to 6 p.m. The branch library is open Monday from 1 p.m. to 8 p.m.; Thursday and Friday from 1 p.m. to 6 p.m. It is closed Saturday and Sunday. The bookmobile, "Reading Roustabout," makes thirty scheduled stops Monday through Thursday.

Circulation

Library cards are issued free of charge to county residents over 18, upon presentation of proof of permanent address. Those under 18 requesting cards must have a parent or guardian's signature. Wyoming residents living outside Natrona County may receive a card for a nominal fee. A new state-wide library card issued in a patron's home county is recognized by the library.

As many items as needed may be checked out at one time, with the following exceptions: four records, one art print, and two cassettes per checkout period. Audiovisual and other equipment is checked out on adult cards only. Items checked out at any unit--Main Library, Branch or Bookmobile--may be returned to any other unit. An after-hours drop, for books only, is located in the Main Library parking lot.

Most materials circulate 21 to 28 days. New books, cassettes, 8 mm film, Government Documents, Wyoming Room material, and Earth Sciences material circulate 7 to 14 days. Art prints may be checked out for six weeks. Audiovisual equipment is loaned on a 24-hour basis. Fines are

charged for late materials. Reference books, magazines, newspapers, telephone books, microfilm, and some items in the Wyoming Room Collection are for in-library use only.

In 1977, 261,000 materials were circulated, 4.3 books per capita.

Reference Services

Three professional librarians staff the reference department. The department has a broad selection of reference aids, plus maps, phonebooks, etc.

The Earth Sciences Collection includes books, maps and documents pertaining to Wyoming and the surrounding area, in addition to publications of U.S. Geological Survey and other technical reports of particular interest to patrons involved in the mineral industry. NCPL is the only library in the country to have DOE Uranium Exploration Reports. The Wyoming Room Collection includes historical and current materials of Wyoming publications by Wyoming authors.

In addition to traditional reference services, the reference department answers ready reference questions by phone on weekdays, provides reserve book service, has large print materials, microfilm readers, photocopying machines and typewriters.

On an average, 3,400 reference questions a month are handled by NCPL; of that number approximately 95 are handled by the branch and 950 by telephone. The majority of reference questions are technical and of a specific nature.

Acquisition Policy

The Public Library Board of Trustees of Natrona County adopted the policies and procedures outlined below as a "materials control" (acquisition) policy. First and foremost, the policy is based on the Library Bill of Rights, ALA's Statement on Labeling, and ALA's Freedom to Read Statement. "The Natrona County Public Library collects the printed and audiovisual materials needed to conduct the individual and group life of its constituency. Provision of materials means more than occasional availability. It means a supply sufficient to make the library a dependable source for most people most of the time. In addition to books, the library selects and provides pamphlets, documents, and other nonbook sources in printed form, and films, tapes, discs, and other nonprint recordings of knowledge and opinion."

The Director approves all selections for purchase. Recommendations may be made by any staff member or patron. Department heads have the direct responsibility for the screening of individual requests. A materials control committee serves as a reviewing agency to see that the collection is developed to serve the needs of the patrons. General selection is made in view of the size and extent of the existing collection, the needs of the community, and the book budget.

Resources (System Membership)

Natrona County Public Library cooperates with neighboring libraries and participates in informal reference networks and the Wyoming State Network, but is not a member of any system per se.

Marketing

NCPL employs a half-time public relations officer who writes a weekly column in the newspaper and other articles as events occur. Two staff members write weekly book reviews for the Casper Journal. Direct mailings are often sent on special programs. The Director and staff do occasional radio and television interviews or ads. The library is unique in that it operates a community television station. This is often used for advertising. Finally, staff members serve as liasons with the school district and other agencies and clubs in the Casper area.

Service Concepts

Natrona County Public Library's service concept is reflected in their objectives for the '70s:

1. Reference and information services are a primary function.

2. NCPL feels that the original objective of public libraries--education--is valid. Their emphasis is on continuing adult education.

3. The library feels that although cultural and recreational functions are important, the roles should be secondary to the information and education functions.

4. Communication, primarily related to local information is an additional goal.

The primary group NCPL has identified to be served are adults. Young adults are included as adults. Services to children are significant, however they are regarded as a responsibility of the schools. Finally, socioeconomically disadvantaged are identified as a special target group for service in the 1970's, although not at the expense of good service to "the large middle class group who have been the greatest users of the library up to this point."

Relation to Other City/County Agencies, Clubs, etc.

NCPL enjoys a good relationship with other city and county agencies, clubs and organizations. One of the members of the library board is also a member of the City Council. The library Director or reference librarian attends Wyoming Geological Association meetings, Lions Club, League of Women Voters, and so on. The meeting rooms of the library are always booked to capacity.

General Acceptance in Community

The library is regarded as an integral part of the community as evidenced by a funding level which is more, for example, than the Casper hospital. NCPL is centrally located and has been established for decades. There is an active Friends of the Library organization. The three meeting rooms are always booked to maximum.

Other Information Agencies in Community

Casper Community College is another prominent information agency in the community. The enrollment of the college is 3,290. There are 27 specialized career programs and five pre-

professional programs. It has a modern well-staffed library which enjoys a good relationship with NCPL.

The Natrona County School System has two high schools, three junior highs and 23 elementary schools. A children's librarian from NCPL interacts with Casper's schools in setting up summer reading programs, tours, story hours, R.I.F., and other programs for students.

Other information sources include the Chamber of Commerce, Information and Referral (United Way Agency), Memorial Hospital and Family Practice Center Libraries, the County Law Library, and the BLM Library.

TALINET AND NCPL

Degree of Cooperation, Commitment, Understanding and Involvement of Staff

All the staff of Natrona County Public Library was very much aware of the TALINET project. In-services were held to acquaint the staff with the telecommunications equipment and the new service TALINET would add to NCPL. At various times during the project there was a certain amount of uneasiness over how the project would operate in relation to marketing promises made to users. This degree of uneasiness had a corresponding effect on level of commitment.

The Director, John Peters, in addition to keeping his staff informed of the project, met with the League of Women Voters, City Manager, Chamber of Commerce, the BLM Librarian and other groups.

The reference department had primary responsibility for TALINET activities. A reference librarian was designated site librarian and spent a good percentage of her time on the project. She was assisted by another reference librarian who was also responsible for handling TALINET requests. The audiovisual staff member helped with any technological problems. The Public Relations Office was active in providing the newspaper releases about TALINET. The branch librarians and bookmobile drivers expressed enthusiasm in regard to eliciting patron involvement in the project.

Staff Capability of Meeting TALINET Requirements

In regard to paperwork and meeting time-lines the reference staff seemed to be a bit harried during the September through December period. However, in January through March the paperwork pressure seemed to ease.

The staff also noted an increase in interlibrary loan requests as a result of literature searches from the project. Reference skills were good in relation to interviewing and handling questions in-house.

The site coordinator had major responsibility for handling TALINET reference questions. She was particularly adept at screening questions and forwarding pertinent information.

Changes in Skills or Communicating Levels

The site coordinator attended the Community Analysis Workshop in May 1978. The library has followed through with the project by carrying out the examination of census data, a telephone book analysis, and a patron-location bulletin board. In addition, NCPL spent a staff in-service day on community analysis. The Director and Assistant Director of the Community Analysis Research Institute served as consultants and speakers and the staff participated in a community walk-around. The community analysis efforts helped in locating the site for a new branch library.

A knowledge of the community was particularly helpful in launching the marketing program for TALINET. The impact of community analysis however, as opposed to previous knowledge of the community, had little effect on marketing efforts for TALINET. The community analysis has been postponed until an additional staff member or time is available.

EQUIPMENT

Installation

There were some preliminary problems with installation of equipment; the phone was installed late and the video monitor had to be replaced.

Training

Training on the Slow Scan and Rapifax was accomplished smoothly with the exception that the Rapifax representative contacted the library on the day it was closed (Casper Day). The Qwip training session over the phone was not as satisfactory. The staff was given in-service demonstrations on operation of equipment.

Problems

Problems with equipment centered around the Qwip machine. The paper clamp malfunctioned occasionally and did not hold the paper to the drum. The staff also remarked about the poor quality of Qwip copy and the necessity to clean the stylus frequently to prevent a black tone problem. An unpleasant odor was detected also.

There were problems encountered with the Rapifax in that due to the machine running constantly and/or the dry climate, the paper would dry out, resulting in poor copy quality. When the machine was unplugged at night and the paper was protected from exposure to air the situation improved. The operators noticed also that dust collected on the rollers and they had to be cleaned after five to six uses.

The Slow Scan presented a problem when a tube in the video monitor burned out. The company sent an entirely new unit to replace the original monitor. In the interim, NCPL provided one of their own monitors for use.

Qwip vs. Rapifax

Due to the time demands Qwip places on the operator, and copy quality, the Rapifax was preferred and used more extensively in transmissions.

Use of Slow Scan

Other than demonstrations, Slow Scan was used only once at Casper. This transaction enabled a patron in Casper who studies genealogy to peruse some rare genealogical materials. Denver Public Library was kind enough to loan the materials for a day so that they could be transmitted from Boulder to Casper over Slow Scan. The staff expressed disappointment that Slow Scan would not scan an entire page and that it required constant attention when in use.

USE OF TALINET BY THE COMMUNITY

Previous Modes of Answering Tough Reference Questions

NCPL reference staff usually contacts people resources by phone when a tough reference question forces them to go outside the library. This was found to be a very successful technique due to the fact that the State Library picks up NCPL's phone bill in-state for these questions, and in most cases hard copy is available in a day or two.

Casper College and the school district are two other resources which NCPL will refer questions to. This mode is about 50 percent successful. Materials are available rapidly.

The State Library and the Bibliographic Center for Research (BCR) in Denver are used for difficult ILLs and literature searches. Some rush ILLs may be taken by phone. Usually response time is two weeks to two months with an 86 percent hit rate. Routine ILLs are sent to Wyoming and Colorado libraries.

Health questions are sent through the Health Sciences Information Network through the Science Library, University of Wyoming. The advantages of this mode are that it is free and 90 percent successful. It takes four days to six months. Literature searches are also available at a cost relative to the data base.

Beneficiaries of Service

Regular users of NCPL, plus new patrons attracted by the marketing campaign, have benefited from the services of TALINET. These users reflect a cross section of most segments of the community. TALINET has had an impact as well, beyond the 50-mile radius of the Casper area. Several questions have been routed from the State Library, the University of Wyoming, the State Department of Economic Planning and Development, and Western Wyoming College in Rock Springs

Volume

During the trial operations phase (11 September-31 December) Casper had 82 transactions.

During the demonstration phase (1 January-31 March) there were 31 additional transactions.

Total transactions for the Project at Casper = 113.

By Type of Transactions:

	Trial Operation		Demonstration		Total	
I.L.L.	22	26.8%	12	38.7%	34	30.1%
Literature Searches	39	47.6	11	35.5	50	44.2
Reference	21	25.6	8	25.8	29	25.7
Total	82		31		113	

By Subject Area

Although there were 113 total transactions, there were only 105 unrelated transactions; i.e., eight transactions represented additional items requested by patrons in pursuit of a solution to a single "problem."

By subject area, the 105 unique "problems" can be grouped thusly:

Medical	16	15.2%
Geology	11	10.5
Business	10	9.5
Education	10	9.5
Environment/Energy	7	6.7
Sociology	6	5.7
Law	3	2.8
Librarianship	3	2.8
Grants	3	2.8
Other Physical Sciences (6 subject fields)	15	14.3
Other Humanities (3 subject fields)	8	7.6
Other Social Sciences (3 subject fields)	4	3.8
Miscellaneous (general interest)	9	8.6
Total	105	99.8%

All together there were 29 distinct subject fields represented by the 105 transactions.

Users Groups

The 113 transactions were submitted by 67 individuals and six libraries; patrons may be identified as:

Educators		10	13.7%
College	4		
Administration	5		
Unknown	1		
Students		9	12.3
Scientists		9	12.3
Library		6	8.2
Businesspersons		5	6.8
Government		3	4.1
Local	1		
State	1		
Federal	1		
Social Agencies		2	2.7
Attorneys		2	2.7
Other (private citizens)		16	21.9
Unidentifiable		11	15.1
Total		73	99.8%

Excluding the libraries, 13 individuals (19.4 percent) had more than one transaction (Casper College had 10 transactions, University of Wyoming had 11 transactions, and the Wyoming State Library had two transactions).

Eleven individuals (16.4 percent) had more than one unrelated transaction; ranging from two (8 patrons) to four (1 patron).

The heaviest users were libraries--the University of Wyoming with 11 transactions and Casper College with 10.

The 105 unrelated transactions were submitted by patrons in the following pattern:

Library		24	22.8%
Scientists		12	11.4
Educators		11	10.5
College	5		
Administration	5		
Unknown	1		
Students		9	8.6
Businesspersons		8	7.6
Government		6	5.7
Local	1		
State	4		
Federal	1		
Attorneys		3	2.8
Social Agencies		2	1.9
Other (private citizens)		19	18.1
Unidentifiable		11	10.5
Total		105	99.9%

Repeat Use

Two literature searches (4 percent of total literature searches) generated later ILL requests for citations found.

Two ILLs (5.9 percent of total ILLs) were generated by previous literature searches done by TALINET.

Of the 11 patrons that had more than one unrelated transaction, five were "return" patrons; i.e., they came to the library with a new, unrelated transaction at some time after their first transaction was processed. One patron came to the library with a new request on the same topic after her first transaction had been processed, while one other patron directly brought a new related request to the library after his earlier request, submitted by another library, had been processed.

In all, nine patrons (13.4 percent of total) returned for additional service after their first contact with TALINET.

Original target market--energy/environment, business, government (including social agencies) and the scientific community constituted 28.6 percent of actual patrons served, submitted 29.4 percent of unrelated transactions, and accounted for 30.1 percent of all transactions.

Identified Non Users

In January a preliminary investigation of statistics reflected that some government agencies and agricultural segments were not as heavy users of TALINET as anticipated. NCPL commented that government agencies had their own information network which they relied on. Agricultural segments were more difficult to market actively due to the number of people involved and their location.

Repeat Users, Non Users, and Response

Statistics seem to reflect a "one-time use" by most users of TALINET in Casper. The exception to this would be the University of Wyoming and Casper College who funneled several requests, ILL and literature searches through TALINET.

Preliminary response to TALINET use is primarily positive. Positive response was noted in remarks concerning the fact that it was a free service and requests were perceived as receiving special treatment. The cases of dissatisfaction appear to correlate with the number of agencies handling the request. For example, a patron who requests a literature search at the University of Wyoming is likely to have it handled three times before it is answered. The original intent of the question is sometimes ambiguous by the time it is handled by TALINET staff. There were some cases of dissatisfaction on the part of the library staff and/or user in regard to the quality of answer expected and the actual results from research by the Graduate Research Assistants.

SITE STAFF EVALUATION OF TALINET

Successes

TALINET was perceived as a success by the staff of NCPL in that it provided a new reference service and that it gave them an awareness of the potential of telecommunications for libraries.

Reference service has always been a priority for NCPL. Having access to free literature searches, and special attention given to unused ILL and reference questions was perceived as a

benefit both by the reference staff and users of TALINET. In addition, the promotion of this new, innovative service was good public relations for the library as a whole.

Although the staff is reluctant to say that Wyoming is ripe for a telecommunications network at this point, they felt that TALINET increased awareness of the potential that rapid telefacsimile may have for libraries in the future.

Failures

The perceived failures of the TALINET project are of a more specific nature than the successes.

First, there is a belief among the staff of NCPL that the Qwip and Slow Scan were failures. The Slow Scan was considered in this light because of a lack of use and inability to scan an entire page; while the Qwip caused problems with occasional paper clip malfunctions (failure to hold the paper on to the drum) and poor resolution of the copies.

A second perceived failure had to do with expectations of reference quality. As previously mentioned, NCPL has always placed a high priority on reference service. Their collection in the areas of geology, energy and government documents is one of the best in the western states area. They also have a professional reference staff which has been dealing with large numbers of sophisticated, technical reference questions for many years. Therefore, the staff sent to TALINET only very difficult questions, which they were unable to handle locally and had expectations of rapid turnaround and high quality results. Disappointments occurred when the reality of more than a day or two turnaround time and less than adequate answers were the case. The staff expressed concern over having Graduate Research Assistants inexperienced in reference work and literature searching handling extremely technical questions. There was also a questioning of the role of FLNPP and whether NCPL would ever be able to tap their resources directly.

The community analysis was not carried out to the full extent in Casper. This was due to time constraints and lack of personnel. While the staff at NCPL did not feel that a lack of community analysis hampered their marketing effort, it was an original priority which they wished they could have pursued.

Initially NCPL had some problems dealing with the operational quirks of the project. For example, they commented that public libraries cannot be expected to conform to an academic schedule. Likewise, some of the restrictions placed on transactions after the project had been in operation were tedious reality.

FUTURE USERS

The staff has not identified any future users at this point. When asked about the future of TALINET the NCPL director indicated that he could envision the State Library, if they had the funds, instituting a telefacsimile network with, for example, the 10 largest libraries in Wyoming. A community leader interviewed felt that the emphasis for telefacsimile would be in special libraries where there may be a greater emphasis on time-critical decision questions.

IMPACT OF TALINET

As the TALINET project progressed more libraries in the State of Wyoming became aware of the potential it offered. The libraries who have sent in several requests, University of Wyoming, Casper College, Western Wyoming College, may feel that void upon the completion of the project.

Wyoming is currently moving slowly and conservatively in the area of cooperation and networking. The focus of attention in this area is a union list and a circulation network. TALINET is certain to leave an impact in terms of the possibilities for telefacsimile cooperation in this rapidly growing state.

FUTURE OF TELEFAX

Other than a TWX project, the state has not explored the possibilities of telefax use. At present, however, no one else in the state besides NCPL has access to, or plans to have access to telecommunications equipment. Therefore, use by the site library would be limited to connections outside the state.

ACCEPTANCE OF TALINET STAFF

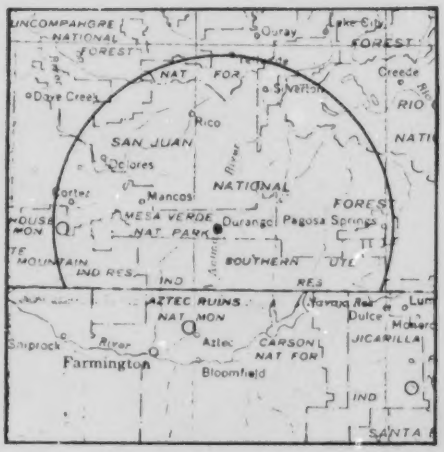
The GRA assigned to the site enjoyed a good rapport with the staff at NCPL. There were some "sensitive" encounters over interpretation of project plans versus the ability of the project to deliver. NCPL has prided itself in its reputation of service and was hesitant to market an "unknown quantity" such as TALINET without reassurances from the Project Coordinator and Director that information promised would be delivered. This concern eased as the demonstration transpired and began to deliver successful results.

The community was receptive to marketing attempts and encounters the GRA had with it. Most of the community was aware of the growing need for information delivery and saw TALINET a welcomed addition to the reference services of NCPL.

Both surrounding library staffs and the State Library were extremely curious about the project. Initially misconceptions over what the project would and would not do had to be clarified. In speaking to the State Librarian, his staff, University of Wyoming librarian and Casper College staff they all were anxious to hear the details of the project and participate in it.

TALINET Site Description
Durango, Colorado

DEMOGRAPHICS



Source: USGS

The Durango Public Library serves the city of Durango and La Plata County, Colorado, an area with a 1977 population estimated at 23,900. This represents a 24.5 percent increase from the 1970 census population of 19,199. The largest increases have been in the 15 to 24 year-old group (46.9 percent) and the 25 to 64 year-old group (30.4 percent), while school age children (5 to 14) have declined 7.1 percent as a population segment. Despite a "common sense" perception of the Durango area increasing in importance as a retirement location, the 1977 estimates show the over-65 population representing only 10 percent of the total population as opposed to 9.9 percent in 1970. Ethnically La Plata County is: White 75.39 percent, Black 0.14 percent, Spanish Surname 19.32 percent, and Native American 4.57 percent, with 0.58 percent classified as "Other." In Durango itself, the Chicano population is located primarily in the southeast part of town where the community maintains separate stores, bars, churches, etc. Educational attainment in La Plata County among adults averages 12.2 years.

Durango serves as the retail and educational center for La Plata and some of the surrounding counties. The major employers in the area are the San Juan Lumber Company, Fort Lewis College, the State of Colorado, Mountain Bell and Mercy Hospital. Tourism-related firms employ the largest number of persons but the total number of employees are divided among many establishments. The area's economic base clearly rests on tourism, agriculture, education and the retail trade. Percentages of the population employed by firms in the major categories are as follows: Service and Other 22.2 percent; Retail Trade 20.9 percent; Government/Education 15.8 percent; Agriculture 10.1 percent; Contract Construction 6.9 percent; Transportation/Public Utilities 6.1 percent; Manufacturing 4.9 percent; Finance/Insurance/Real Estate 3.4 percent; Wholesale Trade 2.1 percent; Mining 1.8 percent; with 5.5 percent unemployed. (Source: 1973 Colorado Community Profile.)

Durango is served by two scheduled airlines with daily service at the La Plata County Airport. Narrow gauge rail passenger and freight service from Alamosa, Colorado was discontinued in 1954. However, a vestige of the passenger service is still operated by the Denver and Rio Grande Western Railroad connecting Durango and Silverton, Colorado during the summer months. Motor freight service is provided by eight companies via Routes 550 and 160. Commercial bus service is provided by the Trailways System.

Durango's relation to the surrounding area is that of a recreational, light industry and retail trade center. The city also provides the cultural and educational focus for the area, primarily due to the presence of Fort Lewis College, a State-supported four-year arts and science college.

The Durango Public Library, organized in 1906, presently serves a population of approximately 23,900 with a collection of approximately 50,000 volumes and a staff of 13 full-time employees. Only the Director and Cataloger have formal library training.

The Durango Public Library is located very advantageously near the intersection of the downtown business district and the main residential districts of the city. The library has been remodeled several times during its history resulting in an up-to-date facility with considerable potential for future growth. A recent (1979) re-arrangement of the floor plan resulted in greatly improved patron service and staff convenience. Basic funding for the library is provided by the City of Durango and La Plata County, each of which contributes funds for library operations based on the proportion of adult circulation attributable to city and county residents. Some state aid and other funds are available for specific projects. The library is governed by a Board of Trustees who serve without pay. The members of the library board are appointed by the Durango City Council. Two of the five board members are appointed from out of town to represent county interests.

Durango Public Library is open daily for a total of 69 hours a week. During the summer the library is closed on Sunday. In 1976, the library circulated 176,125 volumes. Reference service is informal in nature with questions being fielded by the staff manning the circulation desk. Statistics reflect this informal arrangement, so conclusions about the nature and volume of reference requests are difficult to draw with any accuracy. The staff offered few conclusions about the typical reference transaction and was unable to estimate the volume of such requests.

The Southwest Regional Library Service System Headquarters are located directly across the street from Durango Public Library. The library is an active member of the system and will play an increasingly important role in the State Library's system development plans.

The promotion and marketing of the Durango Library is handled by the library Director who has skillfully utilized the media to promote activities and awareness of the library. Durango exhibits a willingness to respond to public need in a positive, forward-looking manner in which the library staff readily seeks to satisfy the patron who seeks out the library.

Service organizations and local government agencies are being actively lobbied to make greater use of the resources of the library. Durango Public Library patrons and community members appear to have a high regard for the library and its staff and support their efforts.

The other major information agency in Durango is the Fort Lewis College Library which has a 105,543 volume collection and a staff of 25 including six professional librarians. Access to Colorado State University for agricultural materials is provided by the county extension service and access to interlibrary loan material is available from the Southwest Library System. The Library actively cooperates with all these agencies and reciprocal services are exchanged from time to time.

TALINET

Cooperation with the TALINET Project by Durango library staff (except for the site coordinator) has been inconsistent. During the first stages of the Project, the Durango Public Library underwent a change of directors. After the transition, the purposes and operation of the TALINET Project were communicated to the library staff. Some of the support staff at Durango Public Library

have reflected that the Project was imposed on them without their consent or consultation, that it created demands on staff that impaired the "normal" functioning of the library, and that it provided an unnecessary service.

The successes of the Project in Durango must be attributed primarily to the site coordinator. This individual, previously untrained and inexperienced in library work, demonstrated a high level of commitment to the Project, performing an increasingly skilled function as liason among patron needs, local library capabilities and constraints, and TALINET staff and resources. Project transactions from Durango were stated clearly and only rarely required telephone clarification. When follow-up was necessary, records were in good order, permitting quick resolution of difficulties.

The current library Director maintained an attitude of acceptance of the Project. His initial library activities included active promotion of the Project to the public but as the Project progressed he became less involved. This may be attributed largely to the need to assimilate all the aspects of a new position. His primary concerns throughout have been maintenance of the library's credibility in the community and assessment of long-range impact and implications of Project activities for Durango.

The Community Analysis (CA) element of the Project has not progressed beyond preliminary stages in Durango. The project site coordinator was originally scheduled for half-time on TALINET reference operations and half-time on CA. The first few months of TALINET operations produced enough reference activity to require her attention full-time. Staff scheduling requirements since then have precluded extensive attention to CA. An initial survey of potential TALINET users was conducted by the site coordinator and the TALINET Graduate Research Assistant assigned to Durango. Marketing efforts were concentrated on the basis of this survey.

Since January 1979, approximately 35 to 40 hours have been devoted to examination of "groups" in the community. This activity has been conducted by the Site Coordinator and a student from Fort Lewis College. A map study of library users is scheduled to be conducted in May of 1979. Community analysis is valued by the present Director and was initially one of the chief benefits he anticipated from Project participation.

EQUIPMENT

The Qwip, Rapifax, and Slow Scan equipment arrived in good condition. In-library wiring requirements delayed the installation of the equipment for two weeks. Training in the use of Qwip and SSTV by vendor representatives was viewed as generally adequate for efficient operation of the equipment; the Colorado Video (SSTV) representative was especially commended. On the other hand, instruction by the Rapifax representative was viewed as perfunctory, and in retrospect appears to have omitted important operating characteristics of the equipment. Equipment operators expressed a marked preference for copy transmitted via Rapifax. Qwip was viewed as being "slow" and "unreliable," requiring great amounts of operator time and being prone to produce blurred images. The Slow Scan television was used for demonstration and public relations purposes. One patron requested a Slow Scan transmission as part of a reference request. Although the equipment worked satisfactorily, the patron was unable to find the information he was seeking.

USE OF TALINET BY THE COMMUNITY

Prior to the TALINET Project, Durango Public Library depended upon the Texas Instruments 732 ASR computer terminal link-up at the Southwest System Headquarters for contact with the Colorado State Library Network (COLONET) concerning reference and ILL questions. Good informal relationships also existed between the Public Library and the Fort Lewis College Library for the exchange of ILLs and reference questions. Informal sources in the community were frequently consulted for reference aid. College students were the largest users of TALINET primarily benefiting from literature search and ILL services provided by the Project. No information is available on possible effects that these competing free services had on the similar State Library sponsored "COLONET/ICN" for-pay.

Volume

During the trial operations phase (11 September-31 December) Durango had 160 transactions. During the demonstration phase (1 January-31 March) there were 57 additional transactions. Total transactions for Project at Durango = 217.

By Type of Transaction

	Trial Operations		Demonstration		Total	
I.L.L.	108	67.5%	54	94.7%	162	74.6%
Literature Searches	32	20.0	3	5.3	35	16.1
Reference	20	12.5	0	0	20	9.2
Total	160		57		217	99.9%

By Subject Area

Although there were 217 total transactions, there were only 86 unrelated transactions; i.e., 131 transactions represented additional items requested by patrons in pursuit of a solution to a single "problem."

By subject area, the 86 unique "problems" can be grouped thusly:

Education	13	15.1%
Business	12	14.0
Medical	6	7.0
Geology	6	7.0
Psychology	5	5.8
Law/Government/Political Science	4	4.6
Energy/Environment	3	3.5
Library	3	3.5
Grants	3	3.5
Other Humanities (4 subject areas)	8	9.3
Other Physical Sciences (5 subject areas)	8	9.3
Other Social Sciences (3 subject fields)	7	8.1
Miscellaneous (general interest)	8	9.3
Total	86	100.0%

All together, there were 32 distinct subject fields represented by the 86 transactions.

User Groups

The 217 transactions were submitted by 59 different individuals and four libraries; patrons may be identified as:

Students		18	28.6%
Educators			
Elementary	1		
High School	1		
College	6		
Administration	1	9	14.3
Businesspersons		6	9.5
Libraries		4	6.3
Medical		3	4.8
Government Officials/Agencies			
Local	2		
Regional	1	3	4.8
Social Agencies		2	3.2
Social Scientists		1	1.6
Scientists		1	1.6
Other (private citizens)		12	19.0
Unidentifiable		4	6.3
Total		63	100.0%

Excluding the libraries, 29 individuals (49.2 percent) had more than one transaction (Durango Public Library had two; Southwest Colorado Regional Library System had four).

Thirteen individuals (22 percent) had more than one unrelated transaction; ranging from two (10 patrons) to five (one patron). Six of these patrons were students, five were educators.

The heaviest user had 19 transactions; all on the same "problem," one literature search and 18 ILLs generated by that search.

The 86 unrelated transactions were submitted by patrons in the following pattern:

Students		25	29.0%
Educators			
Elementary	5		
High School	1		
College	9		
Administration	2	17	19.8
Library			
For self	3		
For patron	5	8	9.3
Medical		6	7.0
Business		6	7.0
Government			
Local	2		
Regional	1	3	3.5
Social Agencies		2	2.3
Social Scientists		1	1.2
Scientists		1	1.2
Other (private citizens)		13	15.1
Unidentifiable		4	4.6
Total		86	100.0%

Repeat Use

Five literature searches (14.3 percent of total literature searches) generated later ILL requests for citations found.

Thirty-nine ILLs (24.1 percent of total ILLs) were generated by TALINET literature searches.

Of the 13 patrons that had more than one unrelated transaction, nine were "return" patrons; i.e., they came to the library with a new, unrelated transaction at some time after their first transaction was processed.

Altogether, 14 patrons (23.7 percent of total) returned for additional service after their first contact with TALINET.

Original target market--energy/environment, business, government (including social agencies) and the scientific community constituted 14 percent of actual patrons served, submitted 19.1 percent of unrelated transaction and accounted for 14.2 percent of all transactions.

SITE STAFF EVALUATION

Interviews were held at the end of the Demonstration phase with both the Director of the Durango Public Library and the staff member serving as Site Coordinator. The following represents their evaluation of Project activities in Durango.

Because the Durango Public Library underwent a change of Directors at the beginning of the Project, it is difficult to determine the original motivation for participation. The new Director anticipated the greatest benefits of Project participation to be a completed community analysis and good publicity for the library. Neither the services to be offered nor the research aspects of the Project were viewed as primary motivators for participation.

Both the Library Director and the site coordinator questioned the selection of the Durango Public Library. They felt that Durango was an inappropriate site to expect a large number of scientific/technical or energy related questions. In fact, questions of this type represented only about one-sixth of the Project activity in Durango, although it was the second busiest site.

Given the nature of library networking in Colorado, it was also felt that both the State Library and the Regional Library System could have been more deeply involved in the planning and operations of the Project.

The Durango Public Library staff was critical of the Federal Library Network Prototype Project's (FLNPP) participation in the TALINET Project. The expectation of benefits from access to FLNPP resources was very high, but not borne out in performance. There were feelings that FLNPP was not fully prepared to participate at the time TALINET undertook operations, that site libraries were not aware what materials or information was available from these libraries, and that there was no provision for access to the Federal libraries after TALINET ends.

The service process conducted by TALINET was seen to offer a mixed bag of benefits and disadvantages. The Site Coordinator especially valued the existence of a "personal" reference staff that would accept and process requests without "hassling" her or thinking her foolish. Both Site Coordinator and the Library Director felt that all the TALINET operations staff (GRAs) were very helpful and had done the best they could to provide service. At the same time they suggested the use of professionals trained in computer skills would shorten turnaround time and improve the quality of response.

The equipment employed in the delivery process was all viewed to be easily operated and presenting no serious problems of reliability. Slow Scan Television proved a major disappointment in application to present conditions due to limitation on format size for transmitted materials, length of operator time involved in use, and requirements of coordinating patron, resource, and operator availability. Of the two pieces of telefacsimile eqipment, Rapifax was preferred because of its speed, automatic coupling abilities, acceptance of larger formats, and because the copy quality seemed "better."

It was felt by the Site Coordinator that during the course of the Project the Durango Public Library had more college professors and college students and a few more businesspeople as patrons than usual. She reported a "chain reaction" at Fort Lewis College, with one professor telling another, telling students, etc. On the whole, Durango staff felt that the Project had greater impact on the library itself than directly on the community. It was felt that the Project not only paid off in terms of publicity but also had some residual impact on staff and activities. The Director felt that his selection and acquisition activities had been affected by "seeing what people are interested in as reflected in the questions." He also noted that, partly as a result of Project participation, he will give greater attention to the reference function and to improving the quality of reference service in the future. The Site Coordinator reported a significant alteration of her concept of the Public Library--"from a book depository to a focus on providing information and programming"--as a result of working with the Project. She also felt that Project participation had improved her knowledge and ability to perform effective interviewing of patrons to provide reference service.

In overall perspective, the greatest benefits of the Project to Durango were felt to be:

1. The provision of free services normally available only at a cost to the patron;

2. Direct access from the local library to resources for ILL. This was felt to be easier for users than routing through the Southwest System.

3. Increased awareness on the part of patrons of the variety and sophistication of existing information services (especially online computerized literature searching).

Durango staff placed the highest value on (a) the delivery of interlibrary loan material, and (b) the existence of a separate (i.e., not owing responsibility to another information agency), "personal" reference staff.

Accordingly, they felt that, were it possible and economically feasible, they would like to continue telefax delivery of interlibrary loan materials within a network employing Rapifax. They also

expressed interest in an in-state reference service, staffed by well-trained, professional reference librarians with access to a good collection or collections connected to local libraries via free telephone service. Such a reference service should, like TALINET, have primary responsibility to network needs, rather than working first for a single agency and only secondarily for network members.

IMPACT OF TALINET

The TALINET impact in Durango has been minimized due to factors beyond the control of the Project. The early planning of the Project in Durango was hampered by the resignation of the Director. The implementation was improved as the new Director took over. One special problem encountered only in Durango was a rewiring of the electrical system to accept the Rapifax machine in the library.

TALINET has been positive in its exposure of the ability of a smaller library like Durango to meet, via telecommunications, sophisticated informational needs in a relatively isolated community. TALINET has provided a positive tool for the new library Director to use in bridging the gaps that existed between the library and the business community, to name one group. TALINET also improved relations between the college students/faculty and the public library. The public library clearly emerged from the Project as a viable information source for this group.

FUTURE OF TELEFAX

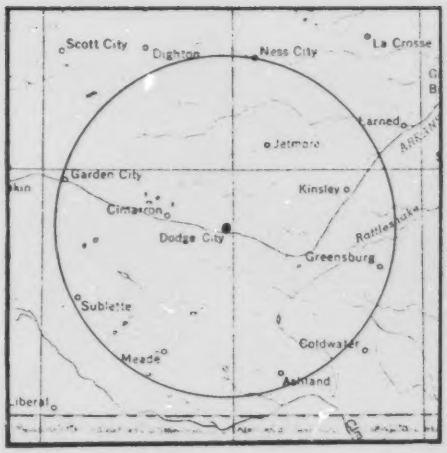
The Durango Public Library, because of its TALINET experience, may be amenable to increased use of telecommunications for appropriate activities in the future. It is probable that the Durango Public Library will move toward closer cooperation with the Southwest Library System and take a stronger role in shaping state library telecommunications plans in the future. However, decisions about the future of telefax/TALINET services in the Durango Public Library will be the prerogative of the Library Director and his Board of Trustees.

ACCEPTANCE OF TALINET STAFF

The GRA assigned to the site felt welcome in Durango. Both the present and previous Library Director provided cordial and strong assistance. The Site Coordinator has done outstanding work throughout the Project, attempting at all times to comply with the requirements of the Project. The lion's share of credit for the success TALINET has enjoyed in Durango must go to her. Other area librarians enjoyed a much closer working relationship with the Southwest Library System than they could be expected to share with a demonstration like TALINET. As a relationship between TALINET and the Southwest System was never fully developed, it was not possible to obtain the close working cooperation with other libraries that would have been desirable. In personal meetings with area librarians, relations were most cordial and the impression was that fine work is being done with very limited resources.

TALINET Site Description
Dodge City, Kansas

DEMOGRAPHICS



Source: USGS

Although Dodge City Public Library serves the city of Dodge City as its primary service area, the TALINET service area drew from the entire population of Ford County, Kansas which was 22,587 persors according to the 1970 census. Recent estimates of the population oi Ford County made by the Human Resource Development Project of the City of Dodge City place current population at approximately 24,000 persons. The trend from 1970 to 1980, in Dodge City is steady population growth. The previous decade, 1960-1970, evidenced a 4.5 percent population growth. Median age in Ford County is 27.7 years with 35.1 percent of the population under 18, 10.4 percent over 65, and 54.5 percent in the 18-65 year old age group. Ethnically, Ford County is 94 percent white, 3 percent Mexican American, .9 percent Native American, .4 percent Black and 1.3 percent classified as "Other". The median years of school completed by males 25 and over in Ford County is 12.4, with 67.5 percent having completed high school. Females 25 and over have completed a slightly higher 12.5 median years, with 67.5 percent having completed high school.

Dodge City serves as the retail and wholesale mercantile center for Ford County and some of the surrounding counties. Major industries are concerned with farm business and the cattle industry, supplying their needs for equipment, seed, feed, maintenance supplies, consumer goods, and with providing a local market for farmgoods and cattle. Recently, constructuon of a major beef processing plant promises to shift the nature of local industry from retail and wholesale sales to meat processing. Presently, the economic base of Ford County resides with farming and cattle although only 950 of a total of 12,200 employed persons are "Farm Workers". "Wholesale and Retail Trade" related workers number 2,925 persons, which is 31 percent of the total Ford County work force. Secondary industries are "Government" employing 1,750 persons (18 percent), "Services" employing 1,475 persons (17 percent), and "Manufacturing Durable and Non-durable Goods" employing 1,225 (13 percent). "Transportation, Communications, and Utilities" workers numbered 775 (7 percent), "Construction" employed 625 (6 percent), "Finance, Insurance and Real Estate" employed 375 (4 percent), and finally, 25 persons were classed in the category "Mining". Mining, in this case, refers to sand and gravel workers.

Dodge City is served by one airline company with daily service, by Amtrak passenger rail service, by Santa Fe for rail freight handling, and by 12 motor freight companies. U.S. Highway 50 connects Dodge City east and west. Dodge City is located 340 miles southeast of Denver. Dodge City has no municipal bus service but does support three taxicab companies.

Dodge City's primary relation to the surrounding area is as a supplier of consumer and industrial goods and services, and as a cultural and educational center.

Dodge City Public Library (DCPL), organized in 1911, was located in a downtown Carnegie building until the mid-sixties when it was relocated to an attractive two-story building two blocks from the original location. Growth and space demands have been heavy and in the summer of 1979, the library will move into yet larger quarters downtown. Basic funding for the library is derived from local property taxes ($164,500 in 1979), with minor support from $5,600 of State funds, and system income of $11,500. The library is governed by a Board of Trustees appointed by the mayor who serve without pay, and is directed by a full-time professional librarian. Dodge City Public Library primarily serves the city of Dodge City, although services are extended to Ford County residents. Library staff consists of five professional librarians (Director, Assistant Director, Acquisitions and Reference Librarian, Adult and Community Services Librarian, and Children's and Young Adult Librarian), four clerical employees, and several volunteers. Professional staff members have Master of Library Science (MLS) degrees.

Dodge City Public Library is open for service daily and on various days of the week is open mornings, afternoons, and evenings. In 1977, the library circulated 51,699 adult volumes, 38,707 juvenile volumes, and 15,382 "other" volumes. Also in 1977, DCPL received 3,271 ILL requests of which 1,007 were filled by DCPL. Of the 3,271 ILL requests, 362 were entered by DCPL patrons and 2,909 were entered from other libraries in Kansas. Reference services were primarily conventional in nature, although special community information was provided by a projects employee. Statistics on reference services have not been kept by the DCPL. staff, so conclusions about the volume and nature of the services are sketchy. Estimates are that volume varies from 5 questions per day to 20 per day. The Reference Librarian estimates that two-thirds of the reference questions come from high school students and one-third from out-of-school adults. Most reference questions come from Dodge City residents. The Librarian estimated that fewer than five percent of the questions asked went unanswered. Other than school work related questions, the most heavily queried subject area was business and economics followed by lay/law questions and lay/medical questions. A few agricultural questions were asked.

The South West Kansas Library System shares quarters in the DCPL. and DCPL. is a member of the System.

Marketing of DCPL. is handled by the Director. Regular news releases about the library and library events appear in the newspaper, and the Director makes regular speaking engagements on behalf of the library. The DCPL. exhibits a service concept of positive, active, community contact in which the library staff readily seeks to satisfy patron's information needs.

DCPL. is actively supported and used by local governmental agencies. Service clubs are visited by the Director and are friendly towards the library. The users of DCPL. regard it highly and support its activities although the disinterested majority prevent funding of a new library building and funding of operations beyond a subsistance level.

Other information agencies in Dodge City include the Cultural Heritage and Arts Center which has an 8,500 volume collection on Kansas and the Old West, and employs a research librarian. The Dodge City Community College has a 29,000 volume book collection plus a variety of media. Dodge

City Community College library has a staff of eleven (five professional); special collections concentrate on agriculture, art, and architecture. The Mike Horning Library located at St. Mary of the Plains College in Dodge City has a collection of 39,387 volumes and a staff of ten (three professionals). The South West Kansas Library System shares quarters and collections with DCPL, with a collection of 37,156 volumes and a staff of seven (one professional). The South West Kansas Library System also serves as the area center for Services to the Blind and Physically Handicapped. The DCPL. has an active working relationship with the above agencies and reciprocal services are regularly exchanged and cultivated.

TALINET

Cooperation with the TALINET Project by the Dodge City Public Library staff has been excellent. The Site staff has displayed a cooperative attitude in the set-up and beginning phases of the project through their seriousness in approaching their community analysis, marketing TALINET to Dodge City and the state of Kansas. With the support of the Director, the TALINET project, the Site Librarian, and his assistant for the TALINET Project, the Community Information Librarian wrote and designed a local TALINET brochure which they sent with an accompanying letter to interested persons in the area. Contacted were business persons, librarians, media persons, government employees, educators, and others thought to be interested for one reason or another.

Involvement of the DCPL. staff in TALINET is primarily limited to the Director and the two above mentioned staff members, although at various times the entire staff has been involved. For example, phases of the Community Analysis project required closing the library and the entire staff participating in two days of collection and shelf list analysis. The staff exhibits a healthy commitment to and an understanding of TALINET. Staff capability of meeting TALINET requirements have been adequate and thorough, and their participation within the guidelines of the program has been meticulous. The Site Librarian began to independently screen TALINET requests for in-house answers, and 42 percent of such requests were answered using DCPL. and in-state resources. A log of the above requests has been maintained. Requests to TALINET from DCPL. were clearly stated and only occasionally required follow-up clarification. In cases where telephone follow-up was required, DCPL. had clear records of the transaction permitting quick contact.

The most noticeable improvement in skills at DCPL. came about through TALINET's clarification of instructions concerning ILL; also the revised Request Form which specified the total information needed for handling each request alleviated problems.

The Community Analysis (CA) project at DCPL. has progressed through preliminary stages and what remains to be done is final drafting and idea synthesis for analysis and recommendations. In reference to initial marketing of TALINET at DCPL., the community analysis was helpful in compiling potential-user lists for promotional contact. No special or unique community aspects were identified vis-a-vis the community analysis.

The completed CA will be of value to DCPL. in their improved understanding of Dodge City. The completed work (CA) will also pull together descriptions and histories of the area topography, city and county history, public library history in Dodge City, and current statistics of library use, borrower file profile, and materials-use profile. The collection/shelf-list inventory and borrower registration file inventory will result in improved file and shelf conditions.

EQUIPMENT

The Qwip, Rapifax, and Slow Scan equipment arrived in good condition and on-time for the project. No problems were encountered in the staff reaching competency level in equipment operation. Qwip use at DCPL. was found less acceptable than Rapifax because of the greater use of staff time in its (Qwip) operation. The staff reported that the Rapifax was easier to use, had fewer failures, and required less time to operate than Qwip. The Slow Scan equipment was used for demonstration purposes but not for a recorded document transmission in response to a request.

Use of TALINET by the Community

Prior to TALINET, DCPL. used a TWX hook-up with the Kansas State Library to forward reference questions and ILL's. Another avenue used was to telephone neighboring colleges, universities, and larger public libraries. The neighboring Systems Headquarters at Hutchinson is and was frequently consulted via telephone for subject searches of their card catalog to fulfill DCPL. requests. Occasionally, DCPL. mails reference questions to specific departmental libraries at the University of Kansas (Lawrence). The patrons requiring reference and ILL assistance from outside the immediate area are from the full-cross section of the borrower make-up of DCPL. Children have made up the smallest user group for TALINET, and only some high school and junior high school students have entered TALINET searches.

Volume

During the trial operations phase (11 September-31 December) Dodge City had 148 transactions.

During the demonstration phase (1 January-31 March) there were 58 additional transactions.

Total transactions for Project at Dodge City = 206

By Type of Transaction:

	Trial Operations		Demonstration		Total	
I.L.L.	61	41.2%	21	36.2%	82	39.8%
Literature Searches	25	16.9	3	5.2	28	13.6
Reference	62	41.9	34	58.6	96	46.6
Total	148		58		206	100.0%

By Subject Area:

Although there were 206 total transactions, there were only 129 unrelated transactions; i.e., 77 transactions represented additional items requested by patrons in pursuit of a solution to a single "problem."

By subject area, the 129 uniques "problems" can be grouped thusly:

Medical	21	16.3%
Energy/Environment	17	13.2
Business/Economics	13	10.1
Law/Political Science	10	7.8
Agriculture	7	5.4
Education	6	4.6
Engineering	5	3.9
Antigues	5	3.9
Chemistry	4	3.1
Sociology	4	3.1
Grants	2	1.5
Librarianship	2	1.5
Other humanities (6 subject fields)	10	7.0
Other physical sciences (4 subject fields)	5	3.9
Other Social Sciences (2 subject fields)	4	3.1
Miscellaneous (general interest) (11 subject fields)	14	10.8
Total	129	100.0%

All together, there were 38 distinct subject fields represented by 129 transactions.

User Groups:

The 206 transactions were submitted by 65 individuals and 22 libraries; patrons may be identified as:

Libraries		22	25.3%
Educators		12	13.8
Elementary	3		
High School	5		
College	1		
Administration	1		
Special Ed.	2		
Businesspersons		8	9.2
Farmer/Rancher		7	8.0
Students		7	8.0
Government (City)		3	3.4
Social Agencies		3	3.4
Author		1	1.2
Social Scientist		1	1.2
Scientist		1	1.2
Medical		1	1.2
Other (general public)		19	21.8
Unidentifiable		2	2.3
Total		87	100.0%

Excluding the libraries, 21 individuals (32.3 percent) had more than one transaction. (Memorial Library in Liberal, Kansas had nine; Hamilton County Library had seven; Garden City Community College Library had four; Meade Public Library had four; Kinsley Public Library had two; and Spearville High School Library had two.)

Twelve individuals (18.5 percent) had more than one unrelated transaction ranging from two (7 patrons) to four (3 patrons).

The heaviest user was the Dodge City city manager who had 22 transactions two reference questions, three literature searches, and 17 ILLs from those literature searches.

The 129 unrelated transactions were submitted by patrons in the following pattern:

Libraries		44	34.1%
Educators		18	14.0
Elementary	6		
High School	8		
College	1		
Administration	1		
Special Ed.	2		
Businesspersons		9	7.0
Farmer/Ranchers		9	7.0
Students		7	5.4
Government (City)		6	4.6
Social Agencies		6	4.6
Author		3	2.3
Social Scientist		2	1.6
Scientist		1	0.8
Medical		1	0.8
Other (general public)		21	16.3
Unidentifiable		2	1.6
Total		129	100.1%

Repeat Use:

Seven literature searches (25 percent of all literature searches) generated later ILL requests for citations found.

Fifty-eight (70.1 percent of all ILLs) were generated by previous TALINET literature searches.

Of the 12 individuals that had more than one unrelated transaction, six were "return" patrons; i.e. they came back to the library with a new, unrelated transaction at some time after their first transaction had been processed.

In all 14 patrons and four libraries (32.2 percent of all users) returned for additional service after their initial contact with TALINET.

Original target market--Energy/Environment, Business, Government, and the scientific community constituted 17.2 percent of actual patrons served, submitted 17 percent of unrelated transactions and accounted for 29.2 percent of all trancactions.

IMPACT OF TALINET

The primary impact of TALINET appears to have been the positive exposure of the DCPL staff to new information sources and the potential role they may serve in providing reference and ILL services of the most advanced kind.

The city has perhaps been impacted by the short-lived influx of new information and what might have been learned from it. The City Manager was a heavy and satisfied user of TALINET and availed himself of TALINET to acquire the latest information on regulations, grants, programs,

services, and potentials for growth, for communities the size of Dodge City. The city was also impacted in some way by the transactions processed at DCPL from other community libraries and how those users from other communities appreciate DCPL after their contact with the library.

The county and surrounding area was probably not impacted greatly although 41.7 percent of all TALINET requests came from this area. System operations corresponds to the surrounding area and were the most heavily impacted group. With systems support, TALINET was presented to Systems participants as a new avenue for advanced reference and ILL help, and 21.3 percent of the TALINET requests from DCPL were generated second-hand from these librarians. Some questions were submitted by the State Library staff and from librarians in communities several hundred miles away. TALINET received questions from every area of Kansas. The State Library was supportive of TALINET and although short-handed, sent two staff members to the TALINET Grand Opening to learn about the system.

FUTURE OF TELEFAX

TALINET activities may have a future potential if a viable program is developed. DCPL would possibly be amenable to continued operations if funds and an information network were available. DCPL may consider the possibility of the State Library funding some part of a continued Kansas information system with DCPL as the hub. The details and practicalities and level of committment would, of course, have to be a formal expression from the Director. It probably would not be possible for DCPL to serve as the hub of such a system without an outside host, such as TALINET has been.

ACCEPTANCE OF TALINET STAFF

The GRA assigned to the site felt cordially and openly accepted by the site staff. The GRA met only willingness and support for the program and could not have been better aided in the work of the Project. Dodge City was not resistant to TALINET and the GRA felt accepted by media representatives. Follow-up telephone calls have been met with positive expressions. The GRA had little contact with librarians from the area except for the opening demonstrations at DCPL., and at that time was well accepted. The State Library persons were interested in TALINET and how the state might benefit from its presence.

SITE STAFF EVALUATION OF TALINET

Evaluation of TALINET by the Dodge City Public Library staff was generally positive. The staff viewed the project as successful and the results as positive. The library received good exposure to the community via the marketing of TALINET, and they continue to receive positive feedback from patrons concerning TALINET. The staff views the TALINET Project as having given a positive boost to the image of the Library in Dodge City through contacting and serving new patrons with specialized technical information needs and by providing more sophisticated reference service to existing patrons. Positive image enhancement has also been gained through TALINET transactions with Dodge City city government. City government has received valuable reference services via TALINET and DCPL., and has experienced their first use of DCPL. in information gathering in aid of decision making.

Another success attached to TALINET has been an upgrading of reference skills among the DCPL. staff. The increase in number and sophistication of the reference questions asked has resulted in better knowledge of their collection, capabilities, and reference strategies. Non-member libraries in the South West Kansas Library System service area have used TALINET via DCPL and have found it useful. These non-member libraries are in need of a continuation of outside reference services and are considering contracting with the System for this service. System personnel consider the above as a step towards membership. DCPL. is the library under contract to the System to provide reference service, so perhaps a larger contract will result. Through TALINET instigation, the staff at DCPL. has actualized their potential to serve as skilled reference librarians in service to Dodge City patrons and to surrounding libraries.

Failures associated with TALINET by the Dodge City Public Library staff are more problems than failures. The Director cited lack of planning as a problem in that time lines changed, there was not much advance notice of changes in Project procedures and plans, and the Project began before adequate input could be gotten from the field. The Director also noted her acceptance of such conditions because of the imposed time guidelines from HEW.

Also cited as a problem was the much underestimated time demand placed on the site staff. The staff expended many more hours in service to TALINET than they had anticipated. Initially, the community analysis work demanded their time, and later paperwork and handling transactions took their time. The staff did not appreciate the detail required on the transaction form (gold) and thought a better form might have been divised with their imput.

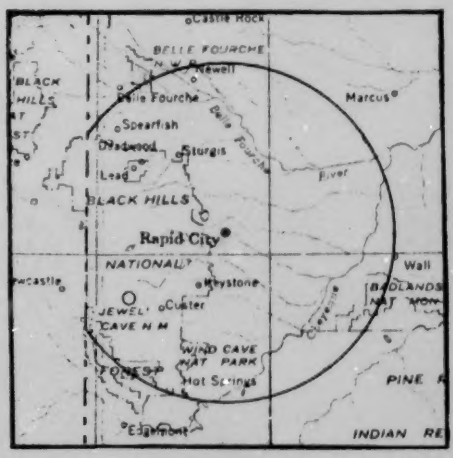
Future users of a "TALINET"-type service in the Dodge City area are the System member libraries. Directly, the users would be residents of the System counties who seek help at System libraries and thence the turn to Dodge City Public Library for service. Existing legal arrangments already are in place for provision of this service which has been greatly expanded by TALINET activities. Expansion of this System to present non-members also appears feasible following the successful demonstration of usefulness to these non-members.

TALINET Site Description
Rapid City, South Dakota

DEMOGRAPHICS

Size

Rapid City was founded in 1876. It is the County Seat of Pennington County and is located about 30 miles from the western border of South Dakota, in the eastern foothills of the famous Black Hills. The area of the city is 16 square miles which is the second largest population in the state of South Dakota. The nearest large cities are: Denver, 400 miles; Minneapolis, 600 miles; and Omaha, 531 miles.



Source: USGS

Population

Trends. The city population according to the 1970 census was 43,836 and the county was at 59,340. In a report published by the Western South Dakota Development Company on September 1, 1978, population trends are quoted from the 1977 Sales and Marketing Management (S&MM) compilations. S&MM estimates the current Rapid City population at 51,500. There was an increase of 6,000 persons during 1977 in the metropolitan area, which includes Ellsworth Air Force Base, Pennington County, and part of Meade County. This accounts for almost the entire net gain of 6,200 people for the state.

Rapid City has been listed as the third fastest growing area in the United States by the S&MM. A report by a private company prepared for the Rapid City Planning Commission projects the 1980 population at 70,450.

Age of Population. People in Rapid City are more than four and a half years younger than the national average. The median age of people according to S&MM is 25.1 years against 29.8 for the nation. The average is also four years younger than South Dakota's average of 29.1 years. The 1970 population census data shows that 33.6 percent of the population of Rapid City are between the ages of 3 and 18, 10.6 percent between 14-18, 52.8 percent between 19-64, and 7.9 percent over 65 years.

Ethnic Breakdown. The Rapid City population is largely Caucasian with .28 percent Black families and 6 percent Spanish language families for Pennington County.

Education. According to the 1970 census 33.2 percent of the total population of the county (ages 3-34 years old) were enrolled in school. Also, 51.6 percent have completed high school, 28.6 percent have completed college, and 19.2 percent have only an elementary level education.

Economics

Major Industries. The chief industry in the Rapid City area is agriculture, followed by tourism. Other major industry categories are the federal government (Ellsworth Air Force Base), retail trade, services, manufacturing, and construction. Cattle and sheep production plus the dairy industry and grain production in the area influence Rapid City's economy.

Secondary Industries. These are utilities; wholesale trade; mining and quarrying; finance, insurance, and real estate; private household workers; forrestry and fishing; railroads; and the airlines.

Percentage of Population Employed by Major Employment Categories. The report prepared by a private company metioned earlier, for the Rapid City Planning Commission shows that total employment increased 20 percent from 1970-1974. Wholesale and retail trade was up 27 percent and general services up 33 percent . The latter percentages reflect the high level of employment in the tourist trade which cannot be singled out. But to give some indication, there are 95 licensed motels with 2,540 rooms. There are aiso 75 restaurants ranging from fast food to fine dining.

The nearby Ellsworth Air Force Base has about 6,190 military personnel. Retail trade employs 23 percent, total services 32 percent, manufacturing 11 percent , and construction 8 percent .

Transportation

The area has one civilian commercial airport, the municipal airport, located twelve miles east of Rapid City. Frontier, North Central, and Western Airlines operate with 17 flights daily to and from Denver, Minneapolis, St. Paul, all the Midwest, Ontario, West Coast, Honolulu, and Las Vegas. There are three local flying services based at the municipal airport. There is no passenger rail service to Rapid City. However, the Milwaukee Road and Chicago Northwestern Railroads provide freight service to the area. Two major trucking firms serve the area. Interstate 90 connects with I-25 and I-29 and U.S. 85, 385, and S.D. 44 and 79, both east and west of Rapid City. Rapid City is a natural center for all transportation systems in the region.

Relation of Site to Surrounding Area

Historically, Rapid City has been a center for trade and agriculture in the Black Hills region. Over 9 million tourists visit the Hills every year; and Rapid City, located on Interstate 90, is the center of all major highways, railroads, and air transportation facilities for the region. It is commonly known as "Gateway to the Black Hills". The Rapid City Chamber of Commerce states that the City is the retail trade center for an area with a 200-mile radius and the wholesale trade center for a 600 mile area.

THE LIBRARY

Size:

The library structure is more than 28,000 square feet of floor space housing the following:

Books	92,991
Films--8 mm and Super 8	158
Government Documents--Federal and State	(revised monthly)
Maps	158
Magazine subscriptions	150
Newspaper subscriptions	18
Microfilm	982
Pamphlets	500
Picutres	156
Recordings	1,920
Slides, Art	314
Tapes and Cassettes	293

Age

After seven years of planning and effort, the present library building was completed and furnished in 1972 at a cost of more than one million dollars.

History

The first mention of a library is found in the Rapid City Daily Journal in 1879 when Rapid City was only a small "Cow Town" located on the banks of Rapid Creek. A few women organized a reading room which expanded in 1881 to a subscription library through efforts of the Rapid City Library Association. In 1903 the voters approved a tax levy to restore library service that had waned. In 1912 State Law provided for library boards to be appointed by the city, but the newly appointed Library Board had to go to court to win authority over the library from the Rapid City Library Association. After the library had operated in a number of different locations for several years, the city applied for and received a Carnegie Foundation grant for a new library in 1917. This building was expanded by the WPA during the 1930's, but in 1965 planning began for construction of a new building to replace the inadequate, old facility. The new building was completed in 1972, and is located two blocks from the downtown area.

Funding

The Rapid City Public Library (RCPL) is supported by city taxed and funded as a department of the City. The library submits budgets to the City and competes with all City departments for funds.

Governance

The Library is governed by a six-member Board of Trustees appointed by the mayor. One Board member is also a member of the City Council.

Service Area

Borrower cards are issued for two years to city residents and to residents of Ellsworth Air Force Base. Those who live outside the city must purchase a card for $10 per year per family. A bookmobile serves 42 stops including nursing homes, schools, shut-ins, and institutionalized persons.

Staff

There are sixteen 40-hour staff members and ten part-time staff. Six of the staff have Master's degrees from an ALA accredited library school, three have a BA/BS or equivalent, two have a junior college degree or equivalent, and the remaining are high school graduates.

Operations

Hours are Monday through Thursday from 9:00 a.m. to 9:00 p.m., Friday and Saturday from 9:00 a.m. to 5:30 p.m. After completing a January 1979 through March 1979 trial of Sunday openings, tentative plans call for being open Sunday afternoon from November through April.

Circulation

In 1960 the circulation was 205,000 and in 1970 it was 234,050. During this same period the number of borrowers went from 16,030 to 25,645. In 1978 the circulation total for all items borrowed at RCPL or its Bookmobile was 245,231 with 25,698 borrowers.

Reference Services

The number of reference questions rose from 5,209 in 1960 to 10,648 in 1970 and then remained stable at 10,915 in 1978. That division also handeled 2,939 requests for interlibrary loan and 25,485 magazines were used by patrons.

Acquisition Policy

Materials selection is done by staff members, with the ultimate responsibility for selection resting with the Library Director. Selection may be limited by budgetary considerations, space, availability of materials in area libraries, ILL resources, and the interests of the public. In general the Library tries to maintain a balanced viewpoint on subjects in adult and children's collections. Criteria for purchase are: individual merit and usefulness; permanent or timely value; sound literary or artistic value; format and illustrations; and appearance in recognized review sources or indexes.

Resources

The library staff uses both formal and informal local resources in the form of special libraries and including individuals. In addition, they use as external resources, the Bibliographic Center for Research in Denver through the South Dakota State Library and have a direct link with the MINITEX network. A special grant from the State Library of $2,500 provides TWX equipment for ILL and communication with libraries.

Marketing

The Library's marketing efforts have consisted mostly of programming with newspaper, radio, and word-of-mouth advertising. The Children's Division conducts the usual class visits, tours, and preschool programs plus special events for children such as animal shows, puppet shows, and con-

tests. There are also various programs for adults including the First Thursday Program which covers a wide variety of general interest subjects, twice-monthly movies, and twice-monthly book discussions. The First Thursday series has hosted everything from belly dancing to legal aid.

Service Concepts

"The Rapid City Public Library is a service oriented institution whose purpose is to provide library materials, activities, and qualified staff to meet the informational, educational, and cultural needs of the community". Special services include audiovisual; interlibrary loan; business, tax, and consumer information; and South Dakota and genealogy collections.

Relation to Other Groups

The Library philosophy is to "cooperate with City departments; local school, college, and special libraries, and organizations in the promotion of educational, cultural, and recreational activities."

General Acceptance

It appears from observations and discussions with users that the library is well accepted largely through the goodwill and hard work of the staff.

Other Information Agencies in the Community

There are a few small special libraries in Rapid City, but taking an initially broader look at the "information" agencies, there are eight radio stations, three T.V. stations, one cable T.V. station, one monthly magazine, two newspapers, and two museums. The following institutions have libraries: Black Hills Packing Co., National College of Business (9,165 book titles in the business fields), South Dakota School of Mines and Technology (58,369 book volumes with concentration in the areas of physics, engineering, mining, and NASA reports), and the Rapid City Regional Hospital East (7,150 book and periodical volumes). The latter recently acquired a computer terminal to access National Library of Medicine data bases. The hospital library primarily serves staff and nursing students (plus lay persons with a doctor's permission). Other information agencies used by the Public Library are the County Courthouse, Volunteer Information Referral Center, 6th District Council of Local Governments, Western South Dakota Development Corporation, and local ministers.

TALINET

General

The staff of the RCPL has been very cooperative and involved in the project. This developed from a real commitment by the library director and an understanding of the potential values of community analysis, publicity, and outreach through involvement in the TALINET Project. As a result, this attitude filtered through the entire staff and produced good working relationships. The staff seemed capable of meeting TALINET requirements. They did initially report that they felt that recordkeeping took time away from reference duties. Although no complete statistics were kept, the staff reports that during the period of July 1977 through July 1978 less than 5 percent of the

questions could not be answered in-house. They call or refer patrons to other City and State resources as needed. The Director and site staff felt that they became aware of new resources for information through TALINET and that, as time went on their reference interviewing became more skillful.

The RCPL is extremely interested in the community analysis process. They understand the procedures and its value to their organization. The staff has completed the walkarounds, shelf list study, and census data collection and these details have been put into an initial report on all aspects of their community. Four staff members are currently preparing the library analysis section including results of user interviews conducted by volunteer Friends of the Library. Such dedication to the production of a community analysis cannot help but be of value in formalizing many facts and aspects concerning the community which individual staff members instinctively know from experience. The sharing of this knowledge with all staff and community leaders is a beginning for using community analysis information in targeting markets and at budget-request time.

Equipment.

The site staff felt that equipment installation went smoothly. The staff was initially uncomfortable with the equipment and felt that the training was rushed. The staff did become more comfortable with extended use of the equipment.

The site staff preferred the use of Rapifax over the use of Qwip. The main considerations in this judgement were quality of the copies and the time consumed in operation. The Qwip produced less reliable copies and consumed reference staff time away from the reference desk during transmissions. The two reference librarians were also the site coordinators, so time was crucial to their scheduling and reference desk operations. The ease of use and speed of Rapifax transmissions made it the preferred means of telefax communication.

The Slow Scan was used with Rapid City on one occasion and it was a positive experience for staff and patron. The situation involved a very technical literature search for an agronomist. The site staff arranged for him to view the Slow Scan of sample "hits" printed online for his evaluation for relevancy to his research technology. In this demonstration, we had the opportunity for direct patron feedback to the results of a search strategy before further expense for offline prints. The delivery system was exciting to work with, however, the cost of one hour Slow Scan time plus staff time on both ends would have to be weighed against the benefits.

Use of TALINET by the Community

Previous to TALINET, the RCPL staff encountered about 5 percent of questions that could not be answered in-house. Most frequently, the staff would call government agencies or individuals in the community, i.e., the libraries at South Dakota School of Mines and Technology or National College of Business. Less frequently, they would contact the State Library, Schools of Law or Medicine at the University of South Dakota/Vermillion, and the Historical Resource Center in Pierre. They could use, but had not used the MINITEX Reference Service.

One dramatic case of a service beneficiary was a doctor at the regional hospital who needed to consult a medical journal article before a decision was made pending amputation surgery. The

request was received, materials located, picked up, and sent by Rapifax from Denver in two hours! As a result of the information provided, amputation surgery was not performed.

VOLUME

During the Trial Operations phase (11 September-31 December) Rapid City had 115 transactions.

During the Demonstration phase (1 January-31 March) there were 42 additional transactions.

Total transactions for the Project at Rapid City = 157.

By Type of Transaction:

	Trial Operations		Demonstration		Total	
I.L.L.	64	55.6%	17	40.5%	81	51.6%
Literature Search	15	13.0	13	31.0	28	17.8
Reference	36	31.3	12	28.6	48	30.6
Total	115		42		157	

By Subject Area:

Although there were 157 total transactions, there were only 115 unrelated transactions; i.e., 42 transactions represented additional items requested by patrons in pursuit of a solution to a single "problem."

By subject area, the 115 unique "problems" can be grouped thusly:

Energy/Environment	22	19.1%
Business/Economics	22	19.1
Medical	9	7.8
Agriculture	8	7.0
Education	8	7.0
Architecture	7	6.1
Chemistry	5	4.3
Other Physical Sciences (7 subject fields)	17	14.8
Other Social Sciences (4 subject fields)	8	7.0
Other (general interest) (4 subject fields)	9	7.8
Total	115	100.0%

All together, there were 24 distinct subject fields represented among the 115 transactions.

User Groups:

The 157 transactions were submitted by 64 different individuals and 5 libraries; patrons may be identified as:

Businesspersons		18	26.1%
Students		18	26.1
Educators		6	8.7
College	5		
Administrators	1		
Libraries		5	7.2
Scientists		3	4.3
Architects		2	2.9
Medical		1	1.4
Clergy		1	1.4
Other (general public)		12	17.4
Unidentifiable		3	4.3
Total		69	99.8%

Excluding the libraries, 19 individuals (29.7 percent) had more than one transaction. (The South Dakota State Library had 18; the South Dakota School of Mines & Technology had 8; and the National College of Business Library had 3)

Eleven individuals (17.2 percent) had more than one unrelated transaction ranging from two (8 patrons) to six (1 patron). Six of these patrons were businesspersons.

The heaviest user was the South Dakota State Library, which submitted 20 requests--19 ILLs and one reference request.

The 115 unrelated transactions were submitted by patrons in the following pattern:

Libraries		31	27.0%
For self	3		
For patrons	28		
Businesspersons		26	22.6
Students		19	16.5
Scientists		8	7.0
Educators		6	5.2
College	5		
Administration	1		
Architects		6	5.2
Medical		1	0.9
Clergy		1	0.9
Other (general public)		13	11.3
Unidentifiable		4	3.5
Total		115	100.1%

Repeat Use:

No literature searches performed by TALINET generated later ILL requests for citations found.

Of the 11 patrons who had more than one unrelated transaction, four were "return" patrons; i.e., they came to the library with a new, unrelated request at some time after their first transaction was processed. One patron came back to the library with a new request on the same topic after his initial transactions had been processed.

In all, five patrons (7.8 percent) returned for additional service after their first contact with TALINET.

Original target market--energy/environment, business, government (Please Note: all State Library requests were for government agencies) and the scientific community constituted 31.8 percent of actual patrons served, submitted 45.2 percent of unrelated transactions, and accounted for 36.9 percent of all transactions.

SITE STAFF EVALUATION OF TALINET

The overall evaluation of TALINET is a very positive one by Rapid City. They were aware that it was an experimental project and that "bugs" would occur. One of the successful aspects of the program they felt was the publicity that brought in new patrons as well as simply increasing the visibility of the Library. These new patrons did not necessarily become users of the RCPL's total services but are expected to use reference services for their particular needs. The site staff also discovered that patrons learned of the depth of the RCPL collection by coming in to ask a question of TALINET that could be answered at RCPL. Another big plus for Rapid City was the training in community analysis techniques which they have put to good use by completing their own community analysis. And lastly, participation in the project enhanced staff awareness of other information resources.

The site staff expressed concern over the marketing effort both on their part and project staff. In retrospect, they felt that the marketing done was very good but wished they had been given more lead time and assistance in marketing techniques. Then later on in the project they wanted to do more marketing when use was lessening, but first ran into the Christmas break time and then into the uncertainty of the closing date for requests and, as a result, never had enough lead time to do a thorough marketing job. In retrospect they wished that they had submitted a newspaper article featuring some of the more interesting questions. They also expressed the desire for more input into project changes, for instance, to attend a meeting in December to discuss the preliminary findings, difficulties, successes, etc. (This was precluded by project budget restrictions) .

The site staff felt that it was very valuable to the users and that it did bring in new users. These users will continue to use RCPL for this level of reference question and the staff will send them through their regualr network channels. This would not likely eliminate student use or those with specific current deadlines, but problems could arise because of the unknown time factor in using other systems. Search costs could likely eliminate users except those whose businesses or organizations could pay the fees.

IMPACT OF TALINET

The impact of TALINET was mostly on the immediate area. Some City officials used it in relation to growth aspects of Rapid City. Professionals in the local educational institutions used TALINET to help them work on improving local educational programs. Private businessmen used the service for project developments that could indirectly affect the City, such as architecture and banking. The demonstration made area professionals more aware of resources of the RCPL for technical information and perhaps has developed a pattern of use among some of them. However, there were very few questions, such as the medical reference for amputation, that had immediate impact on the City or were time critical.

A certain number of users from the county around Rapid City do use RCPL and most likely were aware of TALINET and did use it but they were not identified as such. There were four businessmen living in near-by towns, who used the service. The small public libraries did benefit from the demonstration at the Open House on new telecommunication techniques, although no change in their relationship with RCPL occurred as they have had long standing good rapport.

The systems and the State Library were not much affected by TALINET, although the State Library initially used the service to provide energy-related document and conference reports for State officials. The RCPL did send fewer ILLs through the State Library during this time, however.

FUTURE OF TELEFAX

The Rapid City Public Library would most likely be interested in retaining some form of the project if there were no cost involved. The addition of a wider resource base with a personalized service (TALINET) vs a call or letter to the State Library or MINITEX, seems to have opened more potential uses to them. Use of OCLC and TIE-LINE, a statewide social service information network, are opening new vistas for the entire state.

ACCEPTANCE OF TALINET STAFF

The GRA assigned to the site met site library staff and local library staffs on two site visits and had positive feelings about those meetings.

It was felt that every member of the library staff was most cordial and cooperated with all requests made. The site coordinators did their utmost to meet all project requirements and their hard work was appreciated.

APPENDIX B

TALINET FORMS

#1

F.L.N.P./TALINET REQUEST FORM

TO: NOAA

Last date needed_____

Form desired: ____Photocopy
____Microfilm ____Microfiche
____Hard copy(Mail) ____Slow scan
____Qwip ____Rapifax

Transaction #_____
Requesting library_____
Date requested_____

RESPONDING LIBRARY	
Not sent because:	Sent:
( ) In use	( ) Mail
( ) Not owned	( ) Fax
( ) Other reason	( ) Date_____

Search Statement:_____

_____

_____

_____

Search aids: Keywords:_____

_____

Known authors:_____

_____

Time coverage_____
Search limitations_____
Sources already searched_____

_____

Author_____
Title_____

( ) Periodical or Conference Proceedings
Title_____
Vol._____Issue_____Date_____1st & last pages_____

( ) Book
Publisher_____Date_____
Place of Publication_____

( ) Thesis or Dissertation
University_____Year_____

( ) Technical Report or Government Document
Source_____Date_____
Number_____

Source of citation_____

Request complies with
___108(g)(2) Guidelines (CCG)
___Other provisions of copyright law (CCL)

#2

TRANSACTION FORM LOG

ORIGINATING LIBRARY

NAME OF LIBRARY Parmly Billings

TRANSACTION NUMBER (PLEASE NUMBER CONSECUTIVELY)	DATE REQUEST RECEIVED BY LIBRARY	TYPE OF RFQUEST	PERSON TO WHOM REQUESTED INFORMATION GIVEN	DATE REQUESTED INFO GIVEN

Please note on reverse successes, problems, comments, and suggestions.

#3 TRANSACTION FORM - ORIGINATING LIBRARY

Today's date	Originator's transaction no.
/ /1978 (day mo. year)	

1. Originating Library _____
2. Library person initiating request _____ (name) _____ (title)
3. Library contacted _____
4. Person at library contacted _____ (name) _____ (title) _____ (telephone)
5. Purpose or nature of contact or request _____
6. Patron's name and title _____ (name) _____ (title) _____ (telephone)
   Patron's organization and address _____

7. Patron/originator's priority or deadline
   - ___within the work day of the request
   - ___within two work days
   - ___within one week
   - ___within two weeks
   - ___other (specify)_____

8. Delivery of response to patron/originator
   - ___within the work day of the request
   - ___within two work days
   - ___within one week
   - ___within two weeks
   - ___other (specify)_____

9. Method by which originating library initiated the transaction or request
   - ___telephone only
   - ___U.S. Mail
   - ___TWX
   - ___messenger or courier
   - ___other delivery service
   - ___face-to-face
   - ___telephone and telefacsimile
   - ___telephone and slow-scan television
   - ___other (specify)_____

10. Response method requested by originating library
    - ___not specified
    - ___telephone
    - ___U.S. Mail
    - ___TWX
    - ___messenger or courier
    - ___other delivery service
    - ___telephone and telefacsimile
    - ___telephone and slow-scan television
    - ___other (specify)_____

11. In initiating this transaction or request, did the originating library itself transmit or send any form of document to the responding library?
    - ___yes
    - ___no (Skip to Q. 25)

12. If "yes" checked in Q. 11, specify form of document(s) transmitted or sent by the originating library
    - ___journal
    - ___book
    - ___report
    - ___map
    - ___photograph
    - ___chart or graphic material
    - ___abstract or citation
    - ___handwritten material
    - ___various forms of material
    - ___other (specify)_____

13. Material copyrighted?
    ___yes ___no ___unsure

14. ___Black and white material?
    - ___Shades of gray?
    - ___Color present?
    - ___Mixed?
    - ___Not applicable

15. If originating library used slow-scan television for transaction or request
    Transmission start time_____ End time_____ Elapsed time in minutes_____
16. Material transmitted from photocopy of original? ___yes ___no
17. Number of pages transmitted_____ 18. Number of transmissions required_____
19. Material transmitted left-to-right ___ top-to-bottom___ mixed transmission___
20. Operator's name_____
21. If originating library used teleficsimile for transmission or request
    Transmission start time_____ End time_____ Elapsed time in minutes_____
22. Transmitted via ___RAPIFAX ___QWIP. If QWIP, specify speed ___4-minute ___6-minute
23. Number of pages transmitted_____ 24. Operator's name_____

25. Contact satisfactory ___ Contact unsatisfactory ___ Specify reason(s)_____

26. Additional notes, comments, or problems encountered_____

TALINET REFERENCE QUESTION LOG

Status Key: I.P.=In Progress
L.S.=Literature Search
I.L.L=Interlibrary Loan
C =Completed

Date Received	Number of Question	Subject	GRA	Status	Comments	Date Completed

#5

NOAA Library
325 Broadway
Boulder, CO 80303
FTS 323-3271
Commercial (303) 499-1000 X3271

TO:_____

FROM:_____

RE: Transaction #_____

DATE:_____

Our Response To Your Request	Response Method
_____Literature Search Results	_____U.S. Mail
_____Reference Question Results	_____Qwip
_____ILL Results	_____Rapifax
_____Memo or Comments	_____ No. of pages to follow if qwipped or Rapifaxed

If literature search performed:

Data Bases Searched - Results

1.	6.
2.	7.
3.	8.
4.	9.
5.	10.

Comments

#6

TRANSACTION FORM - RESPONDING LIBRARY

Today's date	Originator's transaction no.
___/___/1978 (day mo. year)	

1. Responding library_____

2. Person at responding library_____ (name) (title) (telephone)

3. Originating Library_____

4. Person at originating library_____ (name) (title) (telephone)

5. Purpose or nature of contact or request_____

6. Response method used by responding library
   - ___telephone only
   - ___U.S. Mail
   - ___TWX
   - ___messenger or courier
   - ___other delivery service
   - ___telephone and telefacsimile
   - ___telephone and slow-scan television
   - ___other (specify)_____

7. If connection with this transaction or request, did the responding library transmit or send any form of document to the originating library?
   - ___yes
   - ___no (Skip to Q. 21)

8. If "yes" checked in Q. 7, specify form of document(s) transmitted or sent by the responding library
   - ___journal
   - ___book
   - ___report
   - ___map
   - ___photograph
   - ___chart or graphic material
   - ___abstract or citation
   - ___handwritten material
   - ___various forms of material
   - ___other (specify)_____

9. Material copyrighted?
   ___yes ___no ___unsure

10. ___Black and white material
    - ___Shades of gray?
    - ___Color present?
    - ___Mixed?
    - ___Not applicable

11. If responding library used slow-scan television in transaction
    Transmission start time_____ End time_____ Elapsed time in minutes_____
12. Materials transmitted from photocopy of original? ___yes ___no
13. Number of pages transmitted_____ 14. Number of transmissions required_____
15. Materials transmitted left-to-right ___ top-to-bottom ___ mixed transmission ___
16. Operator's name_____

17. If responding library used telefacsimile in transaction
    Transmission start time_____ End time_____ Elapsed time in minutes_____
18. Transmitted via ___RAPIFAX ___QWIP . If QWIP, specify speed ___ 4-minute ___6-minute
19. Number of pages transmitted_____
20. Operator's name_____

21. Contact successful ___ Contact unsuccessful ___ . Specify reason(s)_____

22. Additional notes, comments, or problems encountered_____

Trans. No.	Question	Type of Request	Subject area	Patron Name	Address	Phone	Date/ Turn-Around Patron-TALINET	Date T-A TALINET to site	Date T-A Site to Patron	T-A Total	Equip. Used In/Out	Source of Info.
												#7

#8

TALINET REQUEST FORM (Revised 12/78)

To: NOAA
Date required:
Last Date Useful:
Form desired: _____Photocopy
_____Microfilm _____Microfiche
_____Hard copy (Mail) _____SS
_____Qwip _____Rapifax

Transaction # _____
Requesting Library _____
Date requested _____

RESPONDING LIBRARY	
Not sent because:	Sent:
( ) In use	( ) Mail
( ) Not owned	( ) Fax
( ) Other reason	( ) Date

Search Statement (concise statement of question, depth, vocabulary) _____

_____

_____

How will information be used? _____

Name of Patron _____ Phone _____ May we contact? _____

Occupation or profession, if related to question _____ Grade level, if student _____

Sources already searched and results _____

_____

_____

Search aids, keywords _____

Known authors _____

Search limitations: Time coverage _____ Language _____ Technical or non-technical level _____ Bibliographic citations only or citation plus abstract _____

Would this information normally be available thru existing channes? Yes _____ No _____

INTERLIBRARY LOANS: Location: _____ NOAA _____ CU _____ location desired
Author _____
Title _____

( ) Periodical or Conference Proceedings _____
Title _____
Vol. _____ Issue _____ Date _____ 1st & last pages _____
( ) Thesis or Dissertation _____
University _____ Year _____
( ) Technical Report or Government Document _____
Source _____ Number _____ Date _____
Source of citation _____

Request complies with
_____108(g)(2) Guidelines (CCG)
_____Other provisions of copyright law (CCL)

#9

INDIVIDUAL TRANSACTION COST INFORMATION

1. Transaction # _____ Date_____

2. Type of Transaction_____

3. Estimated incoming line charges _____

4. Estimated search charges _____

5. Apportioned equipment charges _____

6. Estimated return line charges _____

7. Other charges _____

8. Total _____

9. TALINET-NOAA Resource staff time _____

10. GRAND TOTAL _____

APPENDIX C

INTERVIEW FORMS

#1

University of Denver
Graduate School of Librarianship
TALINET PROJECT

Telephone Interview with Library Patron

Mr., Mrs., Miss _____
I'm calling you as a user of the _____ Library. My name is _____. I'm a professional librarian from the University of Denver working on a special project with the _____ Library to try to help expand the reference services it is able to provide. We are now contacting a number of recent library users to ask about the services they received from the library so that we can evaluate how helpful our project with the library has been.

Your name was selected at random from the names of all persons who have asked a reference question at the _____ Library over the past few months. Your response will be held in strict confidence. . .that is, while they are of crucial importance to our evaluation, they will not be attributed to you personally if you desire anonymity.

1) According to the library's records, on _____
(date of service)

You asked the library to _____
(describe service)

a) Is this correct? _____ Yes _____ No
b) If "no", what did you ask the library to do for you?

2) For what particular purpose did you need this information? (verbatim response) _____

_____

3) What other places, if any, did you look for this information before contacting the _____, _____ Library?

_____

_____

_____

4) What did you receive from the _____ library in response to your information request? _____

_____

_____

5) Was this the kind of response or information you were expecting?

a) Yes ____ b) No ____

b) If "no," what was the problem?

_____

_____

_____

6) Was the information useful to you? (GRAs: This question focuses on the content of the info.)

a) Yes ____ b) No ____

b) If "no," what was the problem?

_____

_____

_____

7) Did you receive the information in a form that was satisfactory to you? (GRAs: This question focuses on the format and presenation of the info.)

a) For example, was it legible and/or easy to read?

Yes ____ No ____

b) Was there anything else about the form or manner in which the material was presented to you that you especially liked or disliked?

Yes ___ No ___

8) What, if anything, did you do as a result of the information you received? _____

_____

_____

9) How long did it take to get the information you requested?

_____

a) Did this seem like a reasonable time to you? Yes ___ No ___

If "no," why not? _____

b) Would the information have been of any greater use to you if you had received it in a shorter period of time? Yes ___ No ___

If "yes," how? _____

10) What led you to think of the _____ library as a possible place for getting the information you needed?

_____

_____

_____

11) Were you aware at the time you made the request that the _____ Library is now involved in a special project that uses telecommunications equipment to try to quickly obtain information which is not available in the local library?

a) Yes ___ No ___

b) If "yes," how did you learn of this project? _____

_____

_____

12) When you made your information request, did the librarian say anything about a special project or about the equipment that would be used to transmit your request?

a) Yes ____ No ____

b) If "yes," what comments did the librarian make?

_____

_____

_____

13) Were you aware, then, when you received a response to your information request that it came from outside your library and that rapid transmission telecommunications equipment had been involved in the transaction?

a) Yes ____ No ____

14) Had you used the _____ library for information requests prior to the time we have been talking about?

a) Yes ____ No ____

If "yes," how many times over the past two years? _____

b) Have you used it for information requests since the time we have been talking about?

Yes ____ No ____

If "yes," how many times? _____

If "no," would you use it again for information requests?

Yes ____ No ____

If "no," why not? _____

_____

_____

15) The approximate cost of the service provided through the demonstration project in response to your information request that we have been talking about was _____

a) Do you feel the information provided was worth that amount?

Yes ____ No ____

b) Would you have been willing to pay all or part of that amount yourself for the information if our demonstration project were not funding it?

Yes ____ No ____

If "yes," how much would you have been willing to pay? _____

If "no," why not? _____

_____

_____

16) Are there any other things I have not asked you which seem important to you about your information request or the library's response? _____

_____

_____

BE SURE TO THANK THEM FOR THEIR TIME AND EFFORT.

(Info available to GRA on the transaction from other forms for comparisons:)

1. Request recorded by library:

_____

_____

2. Method of transmission:

_____

3. Time from information request to information receipt by site library:

_____

4. Time from receipt of info by site libraries to patron pickup:

_____

5. Patron status (e.g., business, government, student, lay, etc.)

_____

#2

University of Denver
Graduate School of Librarianship
TALINET PROJECT

Telephone Interview with Library Patron

Mr., Mrs., Miss _____
I'm calling you as a user of the _____ Library. My name is _____. I'm a professional librarian from the University of Denver working on a special project with the _____ Library to try to help expand the reference services it is able to provide. We are now contacting a number of recent library users to ask about the services they received from the library so that we can evaluate how helpful our project with the library has been.

Your name was selected at random from the names of all persons who have asked a reference question at the _____ Library over the past few months. Your response will be held in strict confidence. . .that is, while they are of crucial importance to our evaluation, they will not be attributed to you personally if you desire anonymity.

1) According to the library's records, on _____
(date of service)

You asked the library to _____
(describe service)

a) Is this correct? _____ Yes _____ No
b) If "no", what did you ask the library to do for you?

2) For what particular purpose did you need this information?
(verbatim response) _____

_____

3) What did you receive from the _____ library
in response to your information request? _____

_____

_____

4) Was this the kind of response or information you were expecting?

a) Yes _____ b) No _____

b) If "no," what were you expecting instead?

_____

_____

_____

5) Was the information useful to you? (GRAs: This question focuses on the content of the info.)

a) Yes ____ b) No ____

b) If "no," what was the problem?

_____

_____

_____

7) Did you receive the information in a form that was satisfactory to you? (GRAs: This question focuses on the format and presentation of the info.)

a) For example, was it legible and/or easy to read?
Yes ____ No ____

b) Was there anything else about the form or manner in which the material was presented to you that you especially liked or disliked?
Yes ____ No ____

7) What, if anything, did you do as a result of the information you received? _____

_____

_____

a) Did the information affect any decisions that you made?

Yes ____ No ____

If "yes," please explain _____

_____

8) How long did it take to get the information you requested?

_____

a) Did this seem like a reasonable time to you? Yes ____ No ____

If "no," why not? _____

b) Would the information have been of any greater use to you if you had received it in a shorter period of time? Yes ____ No ____

If "yes," how? _____

c) Would it have made any practical difference to you if you had received the information a week later than you did?

Yes ____ No ____

If "yes," please explain what difference.

_____

_____

9) What led you to think of the _____ library as a possible place for getting the information you needed?

_____

_____

_____

10) What other places, if any, did you look for this information before contacting the _____ Library?

_____

_____

_____

11) ASK ONLY IF ANSWER TO QUESTION #9 DOESN'T MENTION AWARENESS OF TALINET

Were you aware at the time you made the request that the _____ Library is now involved in a special project that uses telecommunications equipment to try to quickly obtain information which is not available in the local library?

a) Yes ____ No ____

b) If "yes," how did you learn of this project? _____

_____

_____

12) When you made your information request, did the librarian say anything about a special project or about the equipment that would be used to transmit your request?

a) Yes ____ No ____

b) If "yes," what comments did the librarian make?

_____

_____

_____

13) Were you aware, then, when you received a response to your information request that it came from outside your library and that rapid transmission telecommunications equipment had been involved in the transaction?

a) Yes ____ No ____

14) If you had not been able to receive the information you needed from the library, where else do you think you could have gotten the information? _____

_____

15) Had you used the _____ library for information requests prior to the time we have been talking about?

a) Yes ____ No ____

If "yes," how many times over the past two years? _____

b) Have you used it for information requests since the time we have been talking about?

Yes ___ No ___

If "yes," how many times? _____

If "no," would you use it again for information requests?

Yes ___ No ___

If "no," why not? _____

_____

_____

16) The approximate cost of the service provided through the demonstration project in response to your information request that we have been talking about was _____

a) Do you feel the information provided was worth that amount?

Yes ___ No ___

b) Would you have been willing to pay all or part of that amount yourself for the information if our demonstration project were not funding it?

Yes ___ No ___

If "yes," how much would you have been willing to pay? _____

If "no," why not? _____

_____

_____

17) Are there any other things I have not asked you which seem important to you about your information request or the library's response? _____

_____

_____

BE SURE TO THANK THEM FOR THEIR TIME AND EFFORT.

(Info available to GRA on the transaction from other forms for comparisons:)

1. Request recorded by library:

_____

_____

2. Method of transmission:

_____

3. Time from information request to information receipt by site library:

_____

4. Time from receipt of info by site libraries to patron pickup:

_____

5. Patron status (e.g., business, government, student, lay, etc.)

_____

#3

University of Denver
Graduate School of Librarianship

TALINET PROJECT

Interview with Community Leaders

My name is _____. As I mentioned when I called to make this appointment, I'm a professional librarian from the University of Denver working on a special project with the _____ _____ Library to try to help expand the reference services it is able to provide. We have been contacting a number of library users to ask about recent services they received so that we can evaluate how helpful our project with the library has been.

One area we are particularly concerned with is whether the information available through the library's expanded reference service is useful to community business and government leaders in making decisions which affect the community.

You were selected from the list of all persons asking reference questions at the library over the past six months because of the nature of the question(s) you brought to the library and because of your position in the community. Your responses will be held in strict confidence. . . that is, while they are of crucial importance to our evaluation, they will not be attributed to you personally if you desire anonymity.

1) In the course of your work, are you called upon to make decisions which have at least potential impact on the course of events in your community? Yes ___ No ___

2) What is your usual procedure when you are called upon to make such a decision--that is, what activities do you usually engage in in order to come to a decision?

_____

_____

_____

Are there any informational resources available to you which you usually turn to for assistance in this process?

___ IF YES, what are they? _____

_____

3) How often do you feel you have adequate information available to you to make a knowledgeable decision, and how often do you feel you are in the position of having to "fly blind?" _____

_____

4) In the past (prior to last September), have you ever sought the services of the _____ library's reference department to provide needed information relative to a decision you were called upon to make? ___ IF NO, why not? _____

_____

_____

IF YES, how often, and with what results? _____

_____

_____

5) According to the library's records since last September you have asked the library to provide you with information on the following:

_____

(describe service)

a) Is this correct? ___ Yes ___ No

b) IF NO, what did you ask the library to do for you?

_____

6) Was your need for the information (these information items) related to (a) decision(s) you needed to make? ___ IF YES, what was the issue or situation you were concerned with?

_____

_____

_____

IF NO, what then was the reason you needed this information?

_____

_____

7) What did you receive from the _____ library in response to your information request(s)? _____

_____

_____

8) Was this the kind of response or information you were expecting? a) Yes ___ b) No ___

c) In "no," what were you expecting instead?

_____

_____

_____

9) Was the information you received helpful to you in your efforts to make (a) decision(s) regarding _____? IF YES, please describe as specifically as you can how it affected:

a) your decision-making process (what you did to arrive at a decision), b) the decision itself (what you decided), and c) what happened as a result of the decision (actions taken to implement the decision). _____

_____

_____

_____

_____

IF NO, why wasn't it? What did you need instead? _____

_____

_____

_____

_____

10) How long did it take to get the information you requested?

_____

a) Did this seem like a reasonable time to you? Yes ____
No ____. If "no," why not? _____

b) Would the information have been of any greater use to you if you had received it in a shorter period of time? Yes___
No ___. If "yes," how? _____

c) Would it have made any practical difference to you if you had received the information a week later than you did?
Yes ____ No ____
If "yes," please explain what difference. _____

_____

11) Were you aware at the time you made the request(s) that the _____ library was then involved in a special project that used telecommunications equipment to try to quickly obtain information which is not available in the local library?

a) Yes ____ No ____

b) IF YES, how did you learn of this project? _____

_____

_____

12) When you made your information request, did the librarian say anything about a special project or about the equipment that would be used to transmit your request?

a) Yes ____ No ____

b) If "YES," what comments did the librarian make?

_____

_____

_____

13) Were you aware, then, when you received a response to your information request that it came from outside your library and that rapid transmission telecommunications equipment had been involved in the transaction?

a) Yes ___ b) No ___

14) IF YES TO #4, (USED LIBRARY FOR REFERENCE QUESTIONS PRIOR TO LAST SEPTEMBER), did you notice any differences in the speed or quality of the library's response to your reference questions prior to last September and since last September? Yes ___ No ___

IF YES, please describe as specifically as you can the difference you noticed. _____

_____

_____

15) Do you see the expanded and hopefully rapid information service that was available through this specific project as a resource you need in your role as a community decision-maker? _____. Do you have suggestions as to how it could be made more useful to you? _____

IF YES, what specifically are they? _____

_____

_____

_____

16) Do you think other community leaders see the library as a resource to assist them in obtaining information related to community decisions they are called upon to make? _____
IF NO, why not? _____

_____

How could they most effectively be made aware of this resource?

_____

_____

17) The approximate cost of the service(s) provided through the demonstration project in response to your information request(s) was _____.

a) Do you feel the information provided was worth that amount?
Yes ____ No ____

b) Would you have been willing to pay all or part of that amount yourself for the information if our demonstration project were not funding it? Yes ____ No ____
If "yes," how much would you have been willing to pay? _____. If "no," why not? _____

_____

c) Is there a provision within your business or agency that would have allowed you to pay all or part of that amount if the service had not been available without charge?
Yes ____ All? ____ Part? ____ No ____

18) Are there any other things I have not asked which seem important to you with respect to the library's actual or possible utility to you as a community decision-maker?

_____

_____

_____

BE SURE TO THANK THEM FOR THEIR TIME AND EFFORT.

#4

INTERVIEW GUIDE FOR DEBRIEFING OF SITE LIBRARY DIRECTORS

The following are not questions to be asked verbatim. Instead they are guides for you, the interviewers, to be sure you cover a range of important informational areas with the library directors. There is also a logic to the sequence of topics; however, there is no need to impose this sequence if the director is charging full speed ahead in another order.

1) Broad questioning regarding director's rationale for participation, expectations, and assessment of actual outcomes.

For example, what did they think the project would do? What do they perceive it as having done? What problems and benefits did they anticipate? What unanticipated problems and benefits arose?

Encourage them to discuss problems, benefits, and "neutral" consequences with respect to the following areas:

a) internal operations within the library (staffing, budgeting, etc., including any changes in the priority they now attach to reference services or on the nature of reference services provided, upgrading of reference skills of staff, etc.)

b) the library's relationship with the community (e.g., whether perceived differently by patrons, used by new patron groups, etc.)

c) the library's relationship with the community (e.g., whether perceived differently by patrons, used by new patron groups, etc.)

In summary, what changes in a, b, and c occurred as a result of their library's participation in TALINET?

2) If the project were to be replicated, what changes, if any, would they suggest with respect to:

a) planning for the project

b) community analysis and marketing

c) training staff in use of equipment

d) staffing

e) service policies and procedures

f) relationship and roles vis a vis DU project staff

3) Have them assess the quality and level of their own participation in the project. What priority did it have within their overall program? Do they feel they kept their contract with the University? Do they feel the University kept its contract with them? If not, where do they feel the "slippage" occurred and what do they perceive as its cause(s) and consequence(s)?

4) What uses, if any, did they make of the equipment beyond its utilization for the TALINET project?

5) If funds were no object, what equipment, if any, would they want their libraries to retain? Which would they not want? Why (in both cases)?

6) What implications do they perceive for their libraries related to the withdrawal of Rapifax and/or the service provided by DU? (For example, have community needs been stimulated, that they foresee they may now have trouble meeting? Will the project have positive carry-over by the future despite these withdrawals--e.g., an increased general confidence and competence of the reference staffs).

7) What, if anything, will they do as a result of the project's termination? (For example, participate in new networking activities?) Do they foresee a time when they might purchase or lease any narrow band equipment? If so, how, what, and when? If not, why not (e.g., not financially feasible or not worthwhile from service standpoint or neither)?

#5

University of Denver
Graduate School of Librarianship
TALINET PROJECT

INTERVIEW FORM FOR USE WITH SITE COORDINATORS

RECORD ALL RESPONSES IN DETAIL--VERBATIM WHENEVER POSSIBLE

1) Library and interviewee _____

2) Date of interview _____

LET'S START WITH SOME QUESTIONS ABOUT THE EQUIPMENT ITSELF

3) Which equipment have you personally operated?

a. ___ Slow-scan TV
b. ___ Rapid Telefax
c. ___ Conventional telefax

4) How often did you personally use the equipment? (Estimate number of times per month.)

a. ___ Slow-scan TV
b. ___ Rapid Telefax
c. ___ Conventional Telefax

5) Are you the main operator of the equipment? _____

60 Did you train other staff members on the equipment? _____
If yes, who? _____

7) Which equipment did you prefer to use and why? _____

_____

_____

_____

8) Did you find it difficult to operate any of the equipment? _____
If yes, which, and what specifically did you find operationally difficult? _____

_____

_____

Were you able to find a successful way to deal with this difficulty? ___ If yes, please describe what you did that worked.

_____

_____

_____

Please describe any difficulty you may have experienced in getting the equipment malfunction corrected.

_____

_____

_____

10) Did you experience problems with the quality or reliability of copy with any of the equipment? ___ IF YES, what type of copy problem did you experience and with which equipment?

_____

_____

_____

(Attach example of poor copy if available.)

11) Did the equipment schedule alter the normal routine in your reference department? ___ IF YES, in what ways was the normal routine altered? _____

_____

_____

What problems, if any, were associated with these changes in normal routine? _____

_____

_____

IF PROBLEMS, were you able to deal with these problems successfully? ___ IF YES, how? _____

_____

_____

IF NOT, WHY NOT? _____

_____

_____

12) Before you began actually using the equipment, what were your expectations of the equipment?; what did you think it could or would do? _____

_____

_____

Looking back on the whole project, were these expectations met? ____ IF NO OR ONLY SOMEWHAT, in what ways did the equipment not meet your expectations? _____

_____

_____

13) Do you feel your own training in the use of the equipment was adequate? ____ IF NO, what do you feel was lacking?

_____

_____

_____

14) Did you attempt or happen to find uses for any of the equipment beyond its usage as part of the TALINET project: ____ IF YES, please describe how else you did use it (or attempted to use it) and how well it worked out. If there were problems, describe them. Were they overcome? If so, how? _____

_____

_____

_____

_____

_____

LET'S TURN FOR A MINUTE TO CONSIDER THE SERVICES YOU PROVIDED THROUGH THE USE OF THIS EQUIPMENT.

15) How did you decide which transactions to send through TALINET?

_____

_____

_____

16) Were all patrons whose requests went through TALINET routinely made aware of the special service and equipment being used to satisfy their informational request? ___ IF YES, what specifically were they told? _____

_____

_____

IF NO, was there a particular reason for not routinely informing them? ___ IF YES, what was the reason? _____

_____

_____

17) Did you notice any change during the course of the project in the numbers of information/reference requests being brought to your library? ___ IF YES, what was the change? IF INCREASE, SEEK AN ESTIMATE OF MAGNITUDE. _____

_____

Did you notice any change in the type of requests received? ___
IF YES, how would you describe the change in type of requests?

_____

_____

_____

Were there changes in the type of patrons making informational requests? ___ IF YES, what were the changes in patrons?

_____

_____

_____

LET'S CONSIDER FOR A MOMENT SOME OTHER ACTIVITIES RELATED TO THE PROJECT

18) Please describe as specifically as you can the activities you personally, and other staff members, engaged in for a community analysis related to the TALINET project. _____

_____

_____

_____

_____

_____

How many hours would you estimate went into this effort? _____.
Was it a high, moderate, or low priority item in your thinking?
_____ Why? _____

_____

_____

19) Did your perception of your community and/or your library's desired role in relationship to the community change in any way as a result of the community analysis? ____ IF YES, please describe specifically these changes. _____

_____

_____

20) Please describe as specifically as you can marketing activities related to TALINET which you and other staff members engaged in.

_____

_____

_____

Did these activities differ in any way from normal marketing activities for your reference services? ____ IF YES, how specifically did they differ? _____

_____

_____

Did you feel these marketing activities were effective? _____

What are you basing this assessment of effectiveness on?

21) As you are well aware, the project had record-keeping requirements related to its research and demonstration objectives that would not have been necessary if it had been simply an established operational program. What problems, if any, did the record-keeping requirements cause for staffing and/or performance of other duties?

Do you feel the need for the extensive record-keeping was clearly explained and understood? ____ Do you think it affected attitude toward the total Project adversely? What about any adverse effect on the actual project? ____ Performance? _____

Do you think these adverse effects could have been overcome? ____ IF YES, how? _____

22) Did you find the required forms confusing or difficult to complete (other than in terms of time demands)? ____ IF YES, please describe as specifically as you can the difficulty you experienced with them. _____

LET'S CONSIDER, NOW, POSSIBLE IMPACTS OF THE TALINET PROJECT ON YOUR LIBRARY.

23) Did participation in TALINET alter in any way the priorities of service or the allocation of staff, funds or other resources in your library beyond the TALINET Project itself? ____ IF YES, please describe as specifically as you can what was altered and

how it was altered. _____

_____

_____

_____

24) Did participation in TALINET alter any of your library's activities beyond those directly tied in with the TALINET Project itself (for example, networking with other libraries beyond TALINET or changes in program and services?) ____ IF YES, please describe as specifically as you can what activities changed and how they changed.

_____

_____

_____

WHAT ABOUT THE PROJECT'S IMPACT ON YOU AS A PROFESSIONAL LIBRARIAN?

25) Did participation in TALINET in any way alter your perception of your community and/or its information needs? ____ IF YES, please describe as specifically as you can how your perception of your community and/or its information needs changed.

_____

_____

_____

26) Did participation in TALINET in any way alter your perception of your library and its possible or desirable role in your community? ____ IF YES, please describe as specifically as you can how your perception of your library and its possible or desirable role changed.

_____

_____

_____

27) Did participation in TALINET in any way enhance your own information gathering and information supplying skills? ____ IF YES, what skills do you feel were enhanced? _____

_____

_____

Are there (other) skills which, as a result of the project, you feel you would like to upgrade? ___ IF YES, what are these skills?

_____

_____

_____

28) Did participation in TALINET in any way alter the manner in which you personally deal with reference patrons? ___ IF YES, describe as specifically as you can how your style or manner of dealing with reference patrons has changed. _____

_____

_____

LET'S TURN TO A CONSIDERATION NOW OF THE PRESENT AND THE FUTURE

29) How will you handle information/reference requests now that TALINET has ended? _____

_____

_____

Will any parts of the process be different from what they were prior to the TALINET Project? ___ IF YES, what will be different and how will it differ? _____

_____

_____

30) Do you anticipate you will experience any problems related to the withdrawal of Rapifax and the termination of the service DU has provided your library? ___ IF YES, please describe as specifically as you can what you think these problems will be.

_____

_____

_____

31) If a complete telefax reference service were available, do you foresee a time when your library might purchase or lease narrowband equipment on its own? ___ IF YES, how, what equipment,

and when?

IF NO, why not? (DETERMINE WHETHER THEY FEEL IT IS NOT FINANCIALLY FEASIBLE, NOT WORTHWHILE FROM A SERVICE STANDPOINT, OR BOTH?)

32) If the project were to be replicated or repeated somewhere else, what changes, if any, would you suggest with respect to:

a) Planning for the Project

b) Community analysis and marketing

c) Training in use of the equipment

d) Staffing of the service at the site library

e) Service policies and procedures _____

_____

_____

_____

f) Relationship and role of the site library vis a vis DU project staff _____

_____

_____

_____

g) The equipment itself _____

_____

_____

_____

h) Other areas? _____

_____

_____

_____

33) What is your assessment of your library's level of commitment to the project? High? Moderate? Low? Other? Please describe as specifically as you can your perception of the level of the library's commitment and the reason(s) for that level.

_____

_____

_____

What is your assessment of your own individual level of commitment to the project? High? Moderate? Low? Other? Please describe as specifically as you can your commitment and the reason(s) for that level. _____

_____

_____

_____

34) Do you feel the University of Denver honored the terms of its memorandum of Understanding with your library? ____ Do you feel your library kept the terms of its Memorandum of Understanding with the University? _____.

IF NO IN EITHER CASE, where do you feel the "slippage" occurred and what do you perceive as its cause(s) and consequence(s)?

_____

_____

_____

35) Please summarize the aspects of the project, if any, which you found particularly effective, efficient, or useful.

_____

_____

_____

What parts, if any, were particularly ineffectual, inefficient, not useful, or an actual hindrance to service provision?

_____

_____

_____

36) What elements of the TALINET process, if any, would you like to see as a regular part of your library's information/reference capabilities?

_____

_____

_____

37) Having been through the project and knowing what you do now, would you want to do it again? _____ Why?

_____

_____

_____

APPENDIX D

COST GRAPHS

APPENDIX D

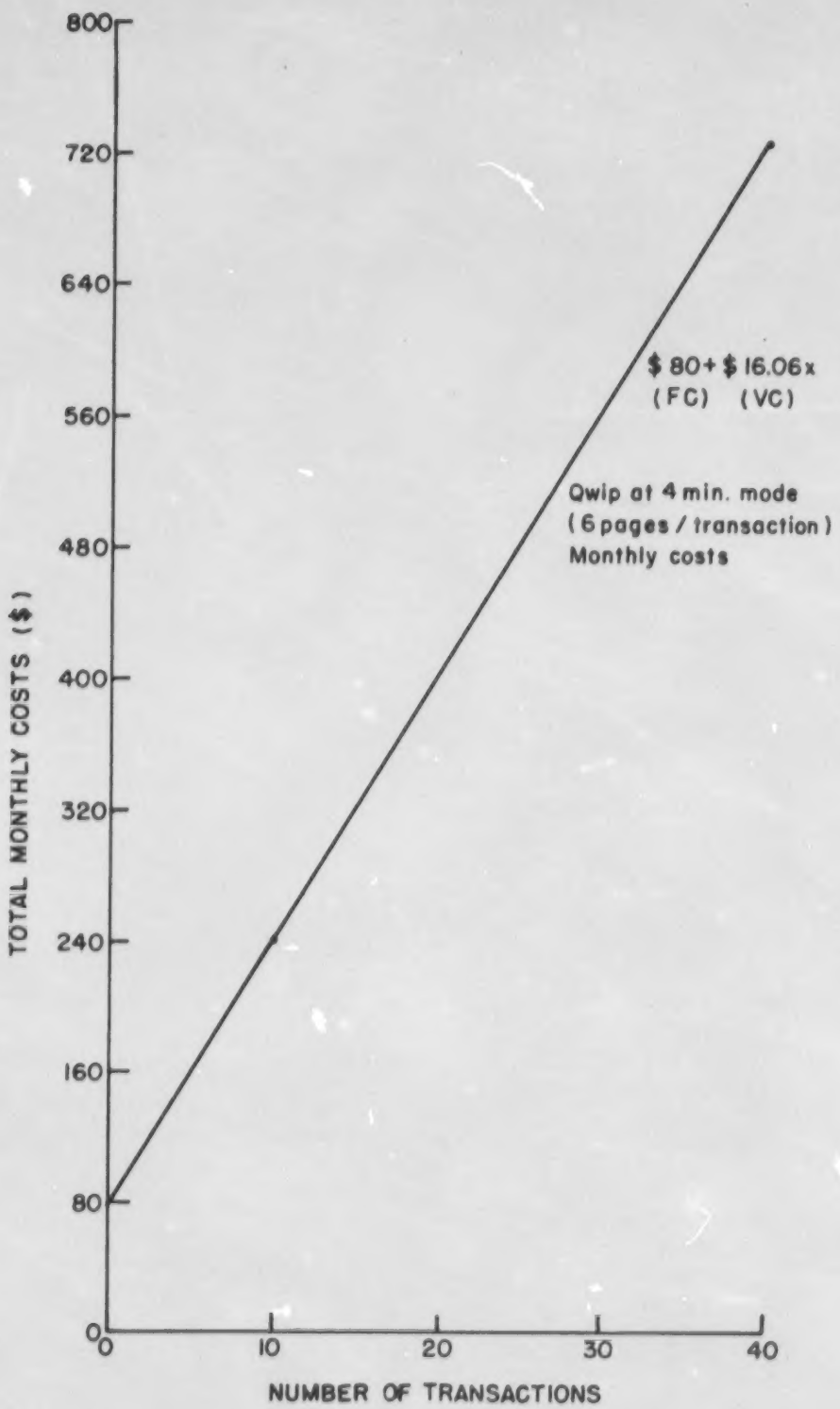
COST GRAPHS

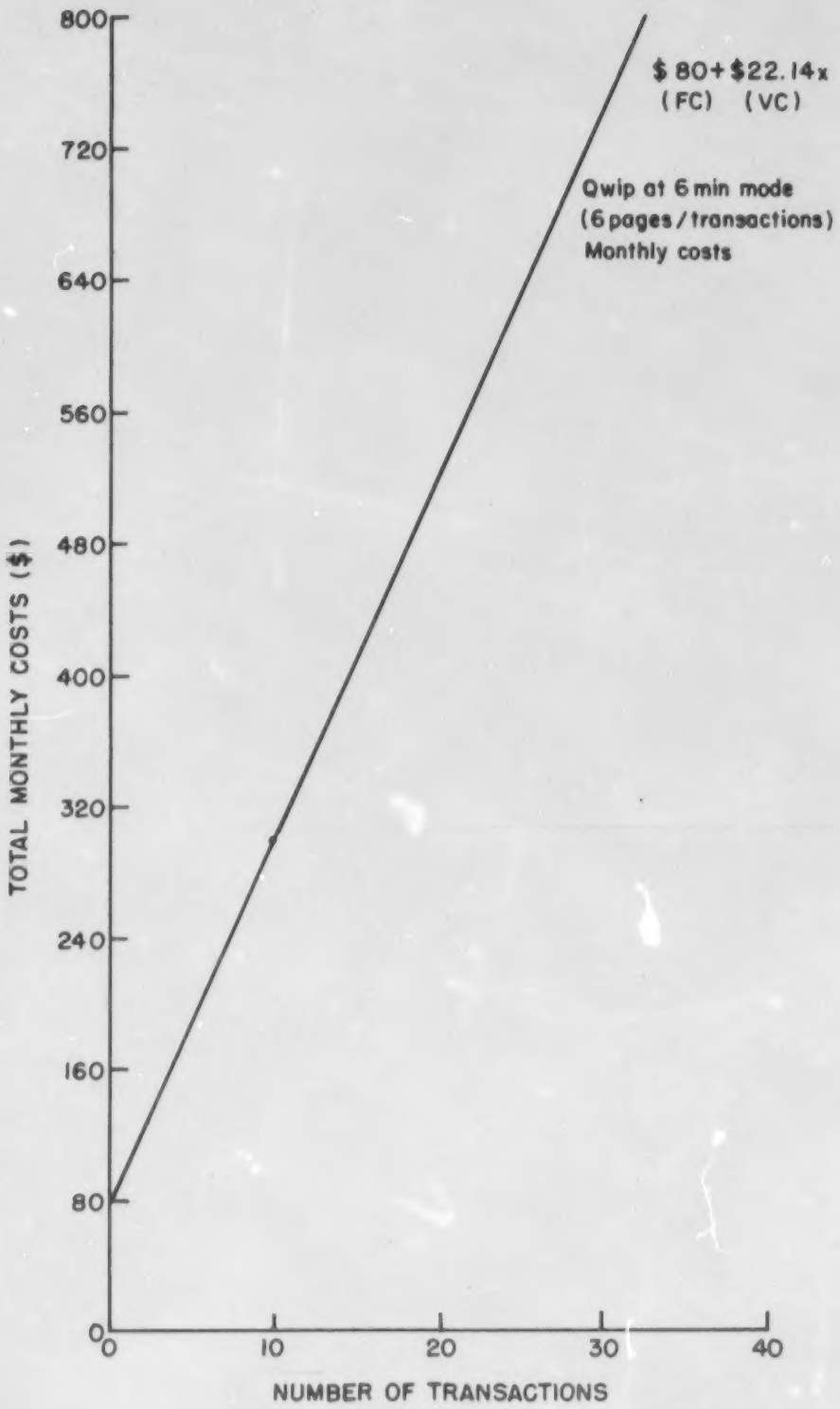
The following set of cost graphs may be used to determine the monthly costs of a 2-node telefacsimile transmission operation employing either the Qwip 1200 or the Rapifax 100.

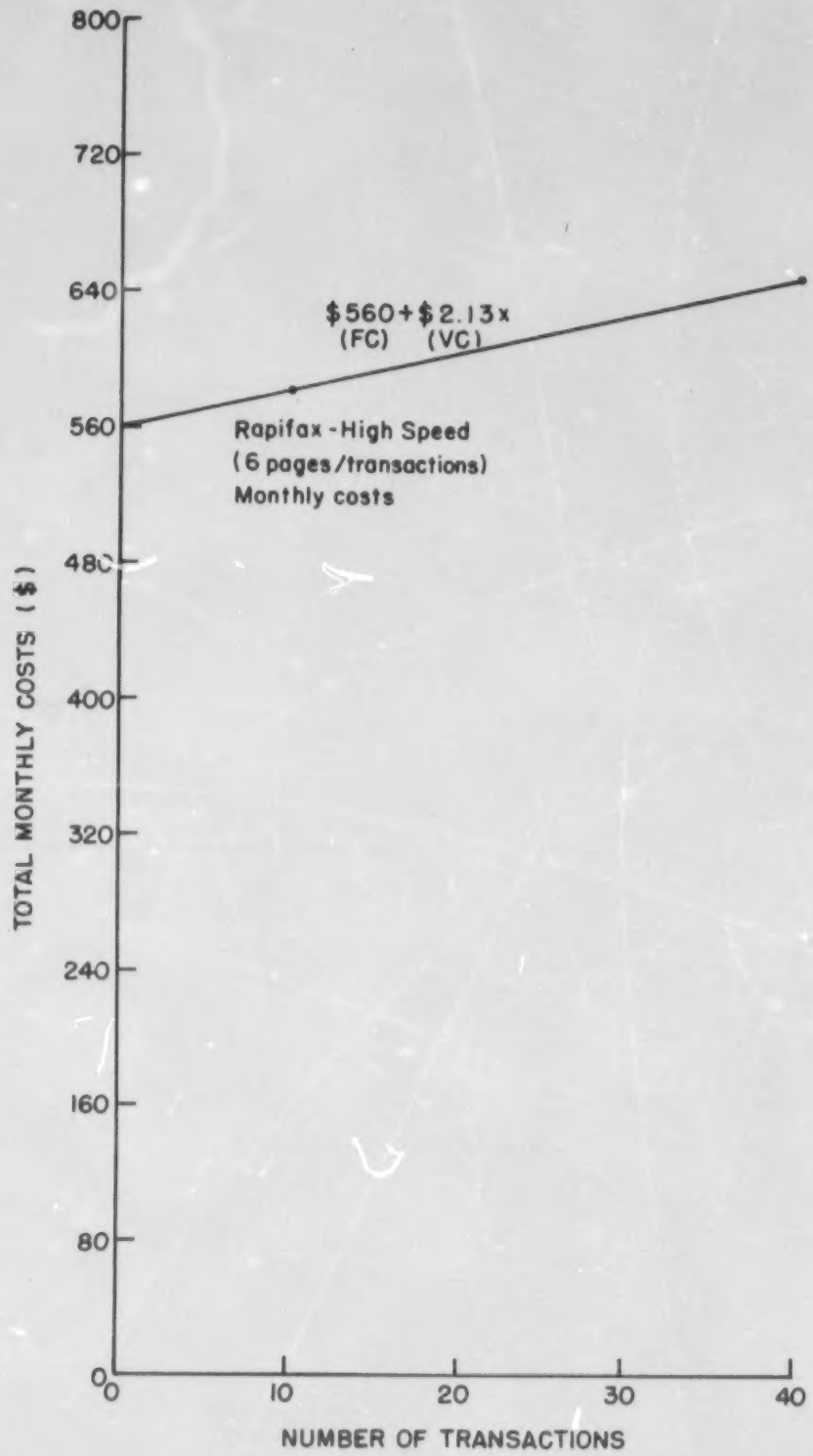
Overlay of Rapifax and Qwip graphs will reveal the breakeven volumes and unit costs for 2-node networks employing these two pieces of telefacsimile equipment. These breakeven points can be used to determine which mode of fax is more cost-effective at any volume of transactions.

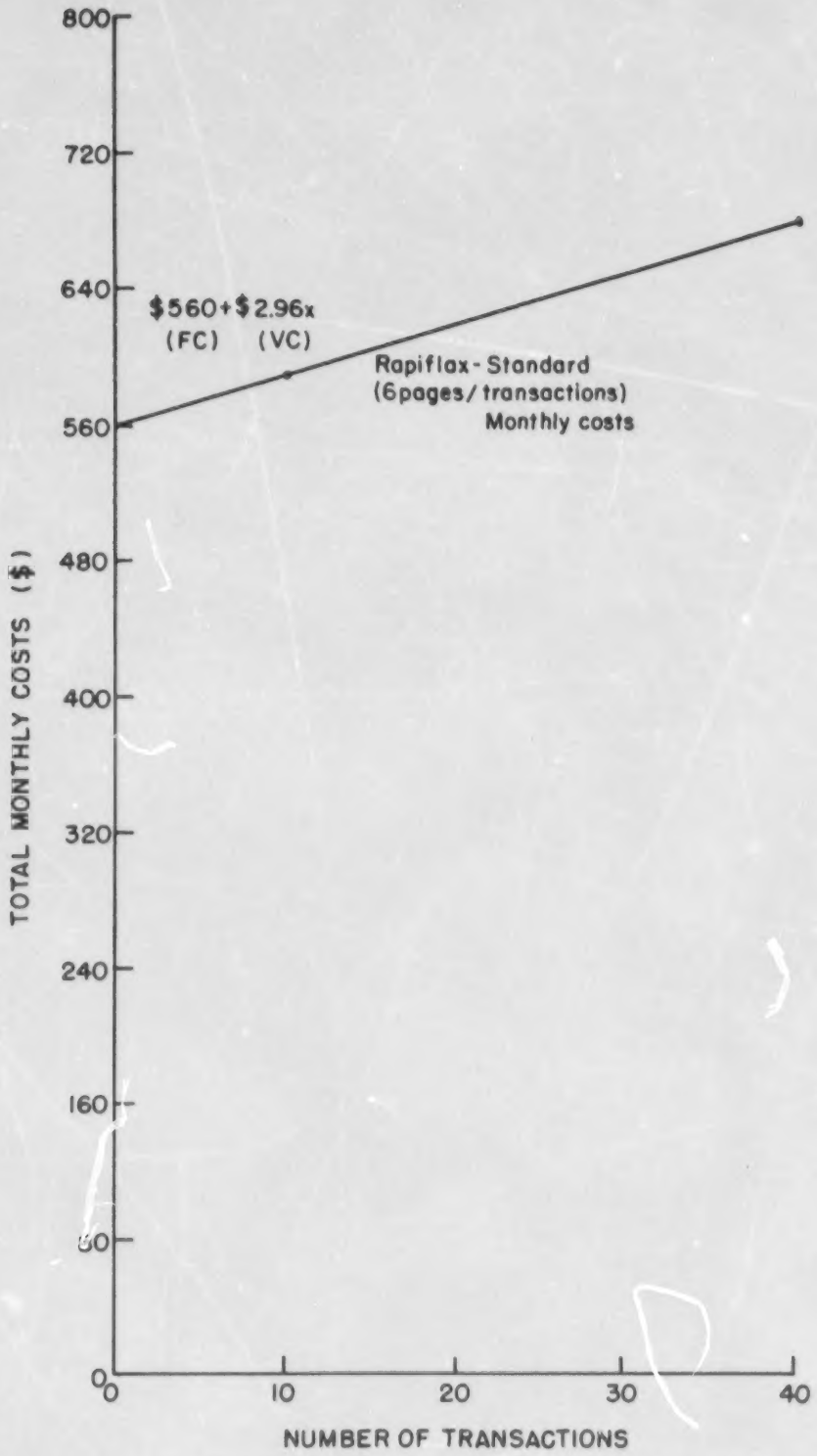
The cost formulas and resulting graphs were derived from the highest actual costs paid by TALINET during the Project period 11 September 1978 to 31 March 1979. Fixed costs represent monthly lease charges (GSA) for annual lease of Qwip 1200 and Rapifax 100--$40 @ and $280 @ respectively. Variable costs are composed of: supplies (12¢/page for Qwip and 5¢/page for Rapifax); line charges (the highest long distance day rates paid between Denver, Colorado and any of the TALINET sites--48¢ for the first minute, 34¢ for every minute thereafter); staff costs (predicated at $5.00/hr for clerical/technical staff). The times used to determine line charge and staff costs were: 5 minutes per page for Qwip in the 4-minute mode; 7 minutes per page for Qwip in the 6-minute mode; 35 seconds per page for Rapifax in High Speed; 60 seconds per page for Rapifax at Standard; and 90 seconds per page for Rapifax at Fine Detail. Two staff persons, one to receive and one to send were included for Qwip transmission with an extra minute per page for communications coordination. Only one staff person, to send, was included for Rapifax transmission since the receiving operation is normally automatic.

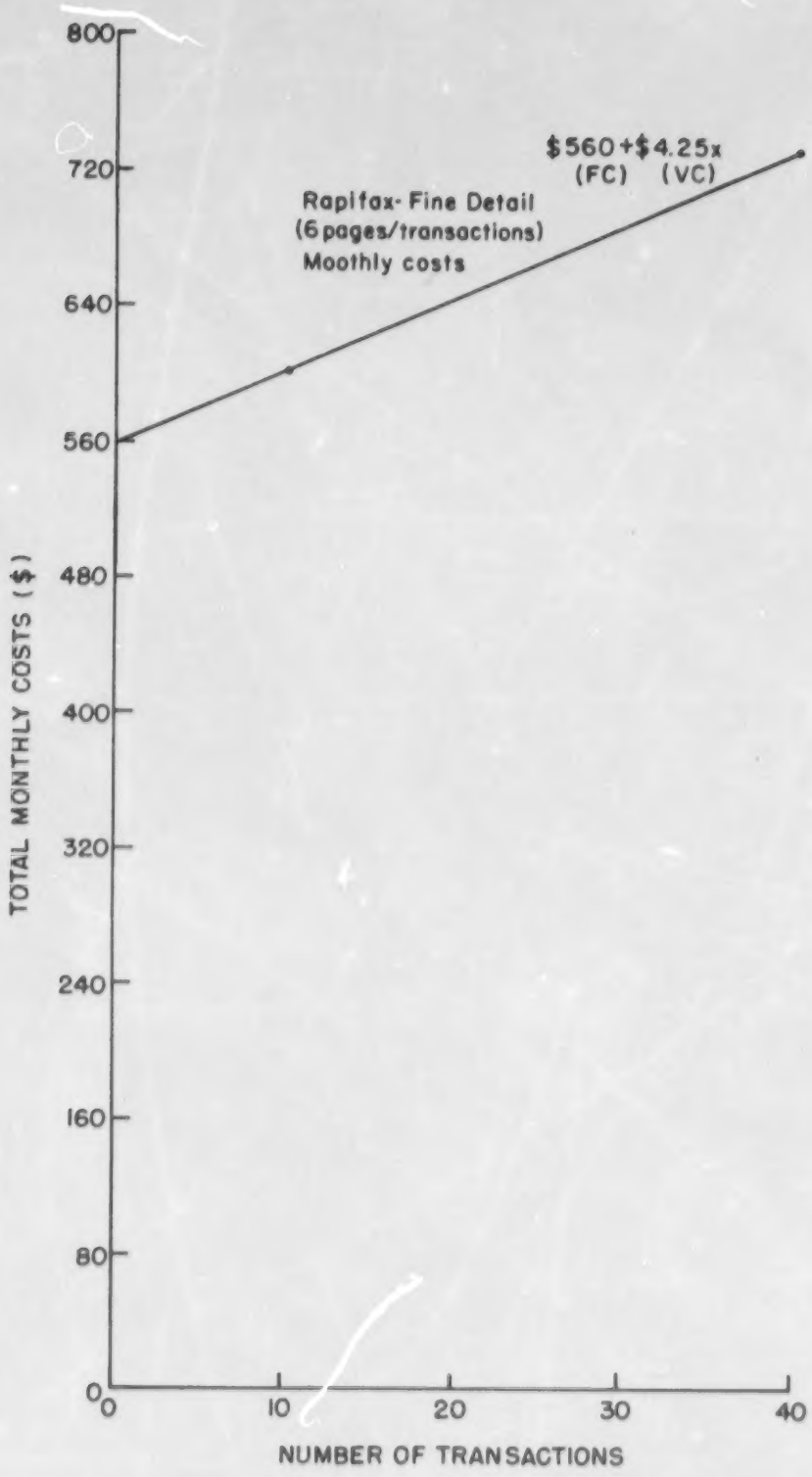
All formulae and graphs are based on an average 6-page transaction--the average length of documents transmitted by the TALINET Project.


800
720
640
560
480
400
320
240
160
80
0
TOTAL MONTHLY COSTS ($)
0
10
20
30
40
NUMBER OF TRANSACTIONS
$ 80+ $ 16.06x
(FC) (VC)
Qwip at 4 min. mode
(6 pages / transaction)
Monthly costs


800
720
640
560
480
400
320
240
160
80
0
TOTAL MONTHLY COSTS ($)
$ 80+$22.14x
(FC) (VC)
Qwip at 6 min mode
(6 pages / transactions)
Monthly costs
0
10
20
30
40
NUMBER OF TRANSACTIONS


800
720
640
560
480
400
320
240
160
80
0
0
10
20
30
40
TOTAL MONTHLY COSTS ($)
NUMBER OF TRANSACTIONS
$560+$2.13x
(FC) (VC)
Rapifax - High Speed
(6 pages/transactions)
Monthly costs


800
720
640
560
480
400
320
240
160
80
0
$560+$2.96x
(FC) (VC)
Rapiflax - Standard
(6pages/ transactions)
Monthly costs
TOTAL MONTHLY COSTS ($)
0
10
20
30
40
NUMBER OF TRANSACTIONS


800
720
640
560
480
400
320
240
160
80
0
0
10
20
30
40
$560+$4.25x
(FC) (VC)
Rapifax- Fine Detail
(6 pages/transactions)
Moothly costs
TOTAL MONTHLY COSTS ($)
NUMBER OF TRANSACTIONS

APPENDIX E

PUBLIC RELATIONS
AND
DESCRIPTIVE MATERIALS

TELEFAX LIBRARY INFORMATION NETWORK
AND
THE FEDERAL LIBRARY NETWORK PROTOTYPE PROJECT

E-1

Press Release - Denver

FOR IMMEDIATE RELEASE

ANNOUNCEMENT

The Graduate School of Librarianship of the University of Denver announces a grant from the Department of Health, Education and Welfare in the amount of $198,764.00 to conduct a one-year telecommunications research project known as "TALINET," Telefax Library Information Network.

The Graduate School of Librarianship, the National Oceanic and Atmospheric Administration Library, the Federal Library Prototype Project, and a consortium of regional libraries in Colorado, Kansas, South Dakota, Montana, and Wyoming will participate in the project.

The project will utilize a process known as Community Analysis to identify expanded community informational needs in five Mountain-Plains states. Information will be researched by Graduate School Research Assistants utilizing the participating federal libraries as the primary information resource. The information will be packaged for transmission utilizing a variety of rapid telecommunication modes. The project will attempt to identify, research, package, and transmit information relating to developmental, environmental, agricultural, governmental service, and business and industry concerns. As the project develops it is anticipated that the system will be able to provide information packaging on an immediate turn-around basis with the service including person-to-person, two-way communication relative to the information topic.

The project will research and evaluate the telecommunications delivery systems, elements involved in information research and packaging, user satisfaction, the applicability of project elements as training modules for graduate students, and cost effectiveness comparisons with current information retrieval and transmission systems.

Margaret Knox Goggin, Dean of the Graduate School of Librarianship, will be the Principal Investigator for the project. Questions or requests for additional information on the project should be directed to:

TALINET
Graduate School of Librarianship
University of Denver
Denver, Colorado 80208
(303) 753-2557

March 1, 1978

Press Release - Denver

THE TALINET PROJECT:
A MODEL DEMONSTRATION IN INFORMATION DELIVERY

Intensive exploration and development of energy resources throughout the West have converted once-sleepy towns into bustling urban areas with the associated problems of lowered environmental quality and rapid social change. Public libraries in these communities have found themselves ill-prepared to meet the demands for rapid access to specialized information to handle energy resource development and its attendant problems.

Help is now being offered to five such communities by the Telefax Library Information Network (TALINET) Project, funded by the Secretary's Office of HEW and conducted by the Graduate School of Librarianship at the University of Denver. The five participating libraries are Durango Public Library (Colorado), Dodge City Public Library (Kansas), Parmly Billings Library (Billings, Montana), Rapid City Public Library (South Dakota), and Natrona County Public Library (Casper, Wyoming). These libraries were selected because their communities are representative of the West and each has identifiable environmental and energy information needs.

TALINET Co-Directors are Dr. William E. Rapp, a private consultant specializing in telecommunications and educational program development, and Clinton Desonia, formerly a public library director in Montana. Five professional librarians - James Boyce, Pete Daniels, Eric Halverson, Cynthia Kraybill, and Joyce Sethre - comprise the staff. Each is assigned as Community Information Specialist to assist one of the five public libraries during the project.

Fourteen libraries composing the Federal Library Network Prototype Project (FLNPP) will provide a broad base of specialized and technical information to be accessed. FLNPP Chairman and staff of the NOAA Library in Boulder, Colorado are providing the Information Specialists with special training to access these resources. Each TALINET library is currently applying community analysis techniques in its community to identify potential consumers of the available information. Specially designed marketing tools will be employed to involve these potential consumers in the project.

The experimental phase of the TALINET Project will employ three types of telecommunications equipment to bring resources and consumers together. Slow-scan television permits remote previewing of documents held by any of the nineteen TALINET and FLNPP libraries, while two types of telefax provide rapid document delivery. Qwip transmits an 8½ x 11" page in 4 or 6 minutes; Rapifax transmits in 35 to 90 seconds. All equipment employs standard voice grade telephone lines.

If successful, it is anticipated that the TALINET Project can provide a blueprint for future national information networking.

Press Release - Denver

PROJECT OFFERS HOPE FOR REFERENCE EXPLOSION

Intensive exploration and development of energy resources throughout the West have converted once-sleepy towns into bustling urban areas with the associated problems of lowered environmental quality and rapid social change. Public libraries in these communities have found themselves ill-prepared to meet the demand for rapid access to specialized information to handle energy resource development and its attendant problems. Now help is being offered to five such communities by the Telefax Library Information Network (TALINET) Project, funded by the Secretary's Office of HEW and conducted by the Graduate School of Librarianship at the University of Denver. The five participating libraries are Durango Public Library (Colorado), John Ison, Director; Dodge City Public Library (Kansas), Jane Hatch, Director; Parmly Billings Library (Billings, Montana), Robert Cookingham, Director; Rapid City Public Library (South Dakota), Helen Hoyt, Director; and Natrona County Public Library (Casper, Wyoming), John Peters, Director. Each library was selected because their communities are representative of the West and each has identifiable environmental and energy information needs.

Margaret Knox Goggin, Dean of the Library School and TALINET Principal Investigator, has assembled an impressive bank of talent to insure the project's success. Co-Directors are Dr. William E. Rapp and Mr. Clinton Desonia. Rapp is currently President of Rapport Associates, a private consulting firm, and grant consultant to the GSL. His specialties include telecommunications and educational program development. Desonia, a former public library director in Montana, comes to TALINET from CLSI, a Boston-based vendor of automated library circulation systems.

Five practicing librarians have been recruited to serve as Community Information Specialists assisting the public libraries. Mr. Eric Halverson, formerly Director of the Washington-Carnegie Library District in Washington C.H., Ohio, will work with the Durango Public Library during the project.

Assisting the Dodge City Public Library is Mr. Pete Daniels, who resigned his six-year Directorship of the Michigan City Public Library (Indiana) to join the project.

Parmly Billings Library has the able assistance of Joyce Sethre, who had been Librarian/Media Specialist at Hermiston High School (Oregon) since 1974 before coming to Denver.

Mr. James Boyce, most recently Assistant Director of the Moscow-Latah County Library System in Moscow, Idaho, will be aiding the Rapid City Public Library.

Casper, Wyoming's Natrona County Public Library has been assigned to Cynthia Kraybill, Director of the Library-Media Center at Northglenn Junior High School (Colorado) for the past three years.

Staff members from each library, along with the Community Information Specialists, attended a Workshop on Community Analysis for Responsive Library Services, conducted by Dr. Roger Greer and Ms. Martha Hale of the Community Analysis Research Institute. Equipped with this training, each Library, with the on-going assistance of their Information Specialist and the CARI staff, is currently conducting an overall analysis of their community for the purposes of identifying individuals, organizations, corporate establishments, and community agencies who are potential consumers of specialized information.

Cooperating with Denver's Library School in conducting the project is the National Oceanic and Atmospheric Administration Library located at the Federal Laboratories in Boulder, Colorado. Director Joan M. Maier is Chairman of the Federal Library Network Prototype Project (FLNPP) which links 14 federal libraries serving the research communities in environment and energy. FLNPP is studying rapid inter-library delivery of documents via slow-scan television and telefacsimile equipment. Dr. Maier and the NOAA Library staff will provide the Information Specialists with graduate level training on the use and availability of NOAA's library resources and the capability and methods for accessing information and data bases in ALL federal libraries. A variety of marketing techniques will be developed to encourage potential users in the remote sites to avail themselves of these resources.

Slow-scan television and telefacsimile equipment will provide a fully-interfaced network of TALINET and FLNPP libraries. Two types of equipment - conventional telefax, transmitting at 4-6 minutes per 8½"x11" page,and Rapifax, transmitting at 35 seconds per page - will be employed. This equipment will provide access to documents held in all participating federal and public libraries. Requests for information from the remote sites will be forwarded to the Information Specialists at NOAA via telephone. When the request has been researched and relevant information compiled, sample documents can be previewed by the user on the slow-scan television equipment. Usable documents can then be transmitted directly via telefax. All equipment utilizes standard voice grade telephone lines.

It is anticipated that the TALINET Project will demonstrate a cost-effective, efficient method of accessing and providing specialized information to remote communities and can provide a blueprint for optimizing the millions of federal tax dollars spent on library and data services by placing the resources of federal libraries into the hands of the public.

Press Release - Natrona County Library

ONE OF FIVE - NATRONA COUNTY LIBRARY
PARTICIPATES IN TALINET

By Mary Alice Gunderson
Public Information - Natrona County Library

Natrona County Library is one of five public libraries designated as being in "remote, energy-impacted" areas and chosen to participate in the Telefax Library Information Network (TALINET) Project.

The service will provide county residents with direct access to some of the largest federal libraries in the country, free of charge.

TALINET is funded by an HEW grant through the Graduate School of Librarianship at the University of Denver and the National Oceanic and Atmospheric Administration Library (NOAA) at Boulder, Colorado. Twelve federal libraries are also participating.

"Telefacsimile equipment will be tested here for about six months to determine how much it can speed service to our patrons. We'll receive nothing on it we couldn't eventually get from other, slower channels," says Library Director John Peters.

Three machines will be in use, including a slow-scan TV to enable a user to view printed information from sites as far away as California and Florida, over a monitor. Another small, cylindrical telefax unit can receive photocopies of single-sheet items such as charts, graphs, tables of contents and bibliographies. Following selection of longer portions of articles and reports, a Rapifax can receive up to 50 copies at the rate of one page per half minute.

The link-ups to large databases, which provide information on a number of sociological, economic and environmental concerns, will be of particular interest to those in energy related fields.

Sites were selected because they display significant activity in gas, oil, uranium, coal and other mining in addition to problems relating to transportation, education, land use, waste and potable water and other items associated with rapid growth and community expansion.

Other libraries in the TALINET project include Parmly Billings Library in Billings, Montana; Durango Public Library in Durango, Colorado; Dodge City Public Library in Dodge City, Kansas; and Rapid City Public Library in Rapid City, South Dakota.

Reprinted from ADVANCED TECHNOLOGY LIBRARIES
August 1978

TALINET: A NEW FACSIMILE TEST NETWORK LINKING REMOTE LIBRARIES WITH FEDERAL RESOURCES

The University of Denver Graduate School of Librarianship (University Park, Denver, CO 80208) is administering a new Telefax Library Information Network (TALINET) to demonstrate methods of delivering energy resource information to remote areas. The project, funded by the Dept. of Health, Education and Welfare, involves tying five participating public libraries to 14 federal libraries in a network of using facsimile equipment and slow-scan television (AT/L, July, '77).

TALINET is to serve individuals and organizations who need specialized energy information through five participating libraries: Durango (CO) PL, Dodge City (KS) PL, Parmly Billings Library (MT), Rapid City (SD) PL and Natrona County (WY) PL . These libraries were chosen because they are representative of western libraries and have energy information needs. The libraries will be linked directly to 14 member libraries in the Federal Library Network Prototype Project (FLNPP). Staff members from each participating library plus a community information specialist for each attended a workshop on community analysis of information needs; the information specialists will also be trained in the use of information and data bases at all federal libraries.

An innovative hardware combination, in which slow-scan TV (CSTV) and facsimile equipment will work in tandem to provide inspection and delivery of documents, has been set up to serve the libraries. Requests for information from the remote sites will be forwarded to the National Oceanic and Atmospheric Administration Library in Boulder, CO via telephone. Once the information is compiled, sample documents can be previewed by the user on the slow-scan TV equipment and usable documents transmitted directly using conventional fax equipment made by Qwip, which takes four to six minutes to transmit an 8½ x 11 in. page, or by Rapifax, transmitting at 35 to 90 seconds per page over normal telephone lines.

TALINET codirectors are Dr. William Rapp, a private consultant specializing in telecommunications and Clinton Desonia, formerly a public library director in Montana. Dr. Joan Maier, chairman of the FLNPP, and NOAA staff specialists will provide the training for the library information specialists.

LJ/SLJ notline

Late breaking news from the offices of
Library Journal/School Library Journal

September 18, 1978
Volume VII, No. 28

....Telefacsimile: TALINET, the Telefax Library Information Network is providing five libraries in mountain and plains states with access to specialized information which their rapidly growing areas--boom towns since the energy rush--need but can't provide with home based resources. Among the equipment being tried out are slow scan television, Qwip telefax and Rapidfax. The network set up will tap federal libraries such as the NOAA Library in Boulder to provide information to the Durango Public (Colorado); Dodge City Public (Kansas); Billings Library (Montana); the Rapid City Public (South Dakota); and the Natrona County Public (Wyoming). If it all really works out, it could provide a model for national networking operations, say the planners.

Reprinted from the BILLINGS GAZETTE

TV network to link city library with materials around nation

City

Being able to first read, and then to get a copy of certain facts found in a reference book located in federal libraries as widely separated as in Florida and California will soon be possible in Billings, merely by visiting the local public library.

"Talinet," the Telefax Library Information Network will include Billings, and four other locations deemed remote and needy of the national research data, under a Title 45 Public Welfare Telecommunications demonstration grant.

Equipment will be installed in July, and after testing and training of personnel, the project should be in operation by September, said Christina Liggett, Billings reference librarian.

"It will be a new research tool for geologists, planners, and other professionals, especially those involved in environmental projects," she said.

The reference work, which may actually located hundreds of miles away in a national library, will be scanned and transmitted over a special phone lines to show up on a television-like electronic screen located in a glassed office on the second floor of the Billings library.

The data will slow-scan, line by line across the screen, to be read. Any part of itd may also be printed-out, by telefax, so the research data can is available in easy-to-refer to form.

In Billings Tuesday were Margaret K. Goffin, dean of the Librarianship Graduate School at the University ot Denver, chief investigator for the project, and Dr. William Rapp, also of the university faculty, project co-director.

They checked arrangements and met with Librarian Bob Cookingham and Liggett, the Billings librarian who will be trained to operate the slow scan television and telefax devices, that use ordinary voice grade telephone lines. She will attend a 4-day workshop in Denver where the informational needs in Billings will be outlined.

Although $198,000 is budgeted for first year opertions of the project, it will operate at no cost to Billings taxpayers, Cookingham said.

Billings has been selected as one of five cities in five states that have extensive growth in development of natural resources, yet are located far from federal libraries where technological data is stored.

The libraries are located at Boulder, Colo., Rockville, Md., Miami, Fla., Washington, D.C., Raleigh, N.C., Gaitersburg, Md., Chicago, Ill., Long Island, N.Y., and Berkeley, Calif. They include the libraries of the NOAA (Oceanic and Atmospheric Administration), Corps of Engineers, Environmental Protection Agency, Bureau of Standards, Argonne National, Brookhaven Laboratories and others.

Other access sites chosen for the project are Rapid City, S.D., Casper, Wyo., Durange, Colo., and Dodge City, Kan.

Reprinted from the DODGE CITY GLOBE

Garden City Public Library, along with other public and academic libraries in western Kansas is currently taking part in a pilot library information project called TALINET.

TALINET is an information delivery project to test the need for rapid access to information in areas of the country far from urban centers or direct access to large university or research collections.

The project, with its local center at Dodge City Public Library, links western Kansas with research libraries in fourteen federal institutions in the United States and four other public libraries in the mountain-plains region. Funds for the program are being provided by the Department of Health, Education and Welfare. The project is being conducted by the University of Denver Library School in conjunction with the National Oceanic and Atmospheric Administration Library in Boulder, Colorado.

The libraries involved in the project offer a world of information in the sciences, engineering, social sciences, business, conservation, and the humanities. Government statistics and research reports are readily available. The demonstration funds a two hour period daily for direct contact with the federal libraries in the project. A telephone call from Garden City Public Library to the local TALINET center in Dodge City makes all this information available to Garden City area residents.

Equipment at the Dodge City Public Library provides a means for TALINET patrons to have printed pages of information, journal copies, or bibliographic citation lists sent over the phone lines in minutes. One machine can send several paper length, and fine copy for maps, small print or X-Rays.

Graduate students based in the NOAA Library in Boulder provide the human expertise needed for computer use in answering questions. Over eighty data bases on a wide variety of fields are available in addition to the federal library network.

Reprinted from the RAPID CITY JOURNAL

City library will be able to provide specialized information through 'Talinet'

Jamie Neely
Staff Writer

A local businessman may need information on national marketing trends or may want to check a complicated new federal regulation.

An area rancher may be looking for recent research on disease control and livestock improvement.

A government official may need the latest budget and planning tools used by other local governments in the country.

All three of these people probably wouldn't consider checking the Rapid City Public Library for this kind of specialized information. They might subscribe to professional magazines or pay an information service for the research they need.

But for the next six months the Rapid City Public Library will be plugged into the largest bulk of information in the United States and can provide the information for free.

Under a grant from the U.S. Department of Health, Education and Welfare, the local library has received equipment that can receive information from 14 federal libraries and more than 85 computer information services across the country.

It's part of the Telefax Library Information Network, or Talinet project, brought to five public libraries in the western energy belt of the country.

The federal government is using Talinet as a demonstration project to find out if the public will use local libraries for specialized research and how much it will cost to provide the information for them.

Jim Boyce, Denver, assistant director of the project, was in Rapid City Wednesday and Thursday to show how the project works.

Equipment valued at $30,200 has been hooked up to telephone lines in the library to send and receive the information.

When the local businessman brings his question into the library, it will be sent to the National Oceanic and Atmospheric Administration Library at Boulder, Colo.

After a researcher in Boulder locates a document on the subject, the businessman can preview the document on a slow-scan television screen to be sure it is what he needs.

If the document has the needed information, it can be transmitted by Qwip, "a long distance Xerox machine," within four to six minutes. A faster, but more expensive machine, Rapidfax, is also available to receive copies within 35 to 90 seconds. The copies look similar to a conventional photocopy.

Rapid City was chosen for the project because of area energy resource development, Boyce said. Other participating libraries are in Dodge City, Kan., Durango, Colo., Casper, Wyo., and Billings, Mont. Cost of the Talinet project for the five libraries is approximately $200,000.

"Small communities need lots of information to cope with rapid growth, Boyce said. "But most small community libraries are unable to provide the information that is needed.

"This is an age when information is turned out so rapidly that no one can stay on top of it," he said.

The project may turn out to be a money-saver for state and local libraries, Boyce said. State and local libraries that have access to a federal library network may not have to purchase many specialized documents.

The demonstration period at the library begins Sept. 11 and continues through February, Boyce said.

TELEFAX LIBRARY INFORMATION NETWORK

SPECIAL INFORMATION FOR SPECIAL PEOPLE

What is **TALINET?**

TALINET is **5** public libraries in the western energy belt.
A team of specially-trained research librarians.
An interface with the **F**ederal **L**ibrary **N**etwork **P**rototype **P**roject **(FLNPP)** composed of **14** federal libraries from coast to coast.
Access to **85+** computer-based information sources in all fields.

TALINET provides **RAPID** delivery of needed information via:

SLOW-SCAN TELEVISION	
CONVENTIONAL TELEFACSIMILE	(4 - 6 min)
RAPID TELEFACSIMILE	(35 - 90 sec)

TALINET services are available in-person, by phone or mail through these participating libraries:

DODGE CITY PUBLIC LIBRARY	606 First Avenue (313) 225-0248	Dodge City, Kansas
DURANGO PUBLIC LIBRARY	1188 Second Avenue (303) 247-2492	Durango, Colorado
NATRONA COUNTY PUBLIC LIBRARY	307 East Second (307) 235-9272	Casper, Wyoming
PARMLY BILLINGS LIBRARY	510 North Broadway (406) 248-7391	Billings, Montana
RAPID CITY PUBLIC LIBRARY	610 Quincy (605) 394-4171	Rapid City, S. Dakota
TALINET Project Offices	Graduate School of Librarianship University of Denver (303) 753-2674	Denver, Colorado

How often have you asked an important question only to learn that the answer was **SOMEWHERE ELSE** and would arrive **TOO LATE** to be of any use?
Now comes **TALINET**, a modern solution to an age-old problem.

TALINET's service is **TWO-FOLD:** We provide you

1 **THE ANSWERS YOU NEED** **2** **WHEN YOU NEED THEM.**

If you are a special person with special information needs, **TALINET** can help you!

BUSINESSMEN:

management information
federal regulations
standards
marketing ideas
patents
statistics
market trends

HEALTH PROFESSIONALS:

access to medline and toxline
new developments in research

RESEARCHERS AND STUDENTS:

comprehensive literature searches
information on grants
updates on current research
research and technical reports

GOVERNMENT OFFICIALS:

planning for growth
environmental concerns
cost-effective public services
budgeting/planning tools
labor practices

EDUCATORS:

info on A-V teaching aids
development of educational programs
background reading lists

FARMERS AND RANCHERS:

range management
control of insects and disease
livestock improvement
new strains
crop fertilization
farm accounting

And **MUCH MORE** to meet **YOUR** specific information needs.

ALL TALINET services are free. **TALINET** is a demonstration project funded by the Department of Health, Education and Welfare.

PARTICIPATING LIBRARIES:

Environmental Protection Agency-Library
Environmental Protection Agency-National
Environmental Research Center
Energy Research & Development Adm.-
Brookhaven Natl. Laboratory
Energy Research and Development Adm.-
Argonne Natl. Laboratory
Energy Research & Development Adm.-
Lawrence Berkeley Laboratory
Maine State Library
Portland, ME Public Library
University of Maine at Orono
U.S. Army-Office of the Chief Engineer
U.S. Army-Corp of Engineers
U.S. Army-Engineering Waterways Experiment
Station
U.S. National Bureau of Standards
U.S. National Oceanic and Atmospheric Adm.
Environmental Research Laboratory
U.S. National Oceanic & Atmospheric Adm-
Marine and Earth Science Library
U.S. National Oceanic & Atmospheric Adm.-
Miami Library
Parmly Public Library, Billings, MT
Dodge City Public Library, Dodge City, KS
Durango Public Library, Durango, CO
Natrona Co. Public Library, Casper, WY
Rapid City Public Library, Rapid City, SD

EXAMPLES OF DATA BASES AVAILABLE:

ACCOUNTANTS' INDEX•AGRICOLA•ASI•
BIOSIS•CHEMCON•COMPENDIX•CHEMDEX•
ENERGYLINE•ENVIROLINE•ERIC•GRANTS•
FED REGISTER•INSPEC•LABORDOC•LISA•
MANAGEMENT•NTIS•P/E NEWS•PNI•PSYCH
ABSTRACTS•RINGDOC•SAE ABSTRACTS•
SSIE•TULSA•TOXLINE•USDA/CRIS•WPI

c/o Dodge City Public Library
606 First Avenue
Dodge City, Kansas 67801

Non-Profit organization
U. S. POSTAGE
PAID
Permit No. 282
Dodge City, Ks. 67801

A WORLD of INFORMATION with TALINET

Dodge City Public Library

WHAT IS TALINET?

TALINET is an information delivery project to test the need for rapid access to information in areas of the country far from urban centers or direct access to university or research library collections.

The project links Dodge City with research libraries in fourteen federal institutions in the U.S. and four public libraries in the mountain-plains region. The project is being conducted by the University of Denver School of Librarianship in conjunction with the National Oceanic and Atmospheric Administration Library in Boulder, CO. The project is funded by the Department of Health, Education and Welfare.

WHAT CAN TALINET DO FOR YOU?

The libraries involved in the project offer a world of information in the sciences, business, conservation and the humanities. Government reports and statistics are readily available. The demonstration funds a two hour period daily for direct contact with the libraries in the project. A telephone call to the library makes all the information available to you.

HOW DOES TALINET WORK?

Telefax equipment and slow scan television transmitting over telephone lines provide a means for local users to have printed pages of information from any of the project libraries. The slow-scan television allows walk-in users to see if an answer is satisfactory before the page is transmitted.

The Qwip telefax unit is portable and can be hooked into any standard telephone. Kansas State University, Pittsburg State University and Kansas University also have Qwip units to speed in-state inter-library loan. Qwip requires four to six minutes to transmit a page. The Rapicom 300 unit transmits a page in seventy-two seconds. This unit can send several paper lengths, fine copy for maps, small print or X-Rays and has a high speed set.

Sixth year graduate students based in the NOAA library at Boulder provide the human expertise needed for computer use in answering questions. Over eighty data bases on a wide variety of fields are available in addition to the federal library network.

WHO CAN USE TALINET?

Western Kansas residents are invited to use this service during the twenty week demonstration period beginning on Sept. 10. Questions from area students, a doctor, a dentist and several business persons have received answers. Some examples include:

Can a data sheet on electronic parameters and pin connections for Texas Instruments integrated circuits series SN7400 be provided?

What was the name and design of the flag flown by George Washington at the battle of Long Island?

How much hot water does the average U.S. family use daily?

Can a copy of an article from Feb. 1975 American Dye Stuff Reporter, p. 43-45 be supplied?

What is the effect of vegetative buffer zones on runoff?

What is available on the use of sodium valporate in the treatment of epilepsy?

WHY IS TALINET IMPORTANT?

Access to information is vital to make well informed choices. The federal library system is searching for methods to make their information available to the public. If this method proves to be effective in making information readily available, similar equipment could be used to form a national delivery system. This project is a demonstration to test a number of factors involved in such a system.

A large response to this pilot program may provide the impetus to fund projects which link people in sparsely populated areas with needed reference sources.

WHAT IS THE FIRST STEP?

For a world of information write or call:

Bill Sowers or Vonda Sanders
Dodge City Public Library
606 First Avenue
Dodge City, Kansas 67801
(316) 225-2465
(800) 362-9103 (toll free)

talinet

TELEFAX LIBRARY INFORMATION NETWORK

A TELECOMMUNICATIONS INFORMATION DEMONSTRATION
FUNDED BY
U.S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE

The TALINET demonstration is being conducted by the Graduate School of Librarianship of the University of Denver in cooperation with the Durango, Colorado Public Library, the Dodge City, Kansas Public Library, the Parmly Billings, Montana Public Library, the Rapid City, South Dakota Public Library, the Natrona County Public Library in Casper, Wyoming and the fifteen libraries in the Federal Library Network Prototype Project with headquarters in the National Oceanic and Atmospheric Administration Library in Boulder, Colorado

Participated in the opening of the TALiNET project demonstration and is therefore designated an official "TELEFAX COMMUNICATOR."

Margaret Knox Goggin

MARGARET K. GOGGIN
PRINCIPAL INVESTIGATOR

Joan Maier

JOAN MAIER, DIRECTOR
FEDERAL LIBRARY NETWORK PROTOTYPE PROJECT

William E. Rapp

WILLIAM E. RAPP
PROJECT DIRECTOR

James E Boyce

JAMES BOYCE
ASSISTANT DIRECTOR

Dear Dr. Rapp,
I wish to tell you how very valuable to me the Russian reference from Ophth. Z.h. was. I have ordered a reprint of the article. I am an unaffiliated scholar. I published my major piece of work in Logic Summer '73, and my life-work in Human Development will come out this fall. I might have looked five years and never found this article. Thank you very much.

Yours truly,

University of Denver
COLORADO SEMINARY

MEMORANDUM

DATE June 16, 1978

TO Faculty and Sixth Year Students

FROM Margaret Knox Coggin - Chairman, Sixth Year Committee MKC

SUBJECT

Each student is required to take 45 hours of course work, approximately 22 in the field of librarianship and 23 in a cognate area. These are approximations only and in each case, the student's program can be flexible to reflect the career objectives of that particular student.

For those who are in TALINET, where there is a graduate assistantship involved requiring 20 hours of work on an average week, the student would be expected to take approximately 10 hours each quarter. Five hours may be taken in Independent Study relating to their TALINET work assignments as long as it is clearly understood that there must be some assignment of a paper or a summarizing document which focuses an academic or philosophical or theoretical aspect to the practical case study.

As a help to those who are advising students and to the students themselves, I would like to list some of the possible courses which they might be interested in taking as they proceed in the development of their program. These are only suggestions and it must be remembered the only requirement in the program is to take the three seminars in Advanced Studies for 3 hours each.

Summer Quarter	Seminar in Advanced Studies: Administration	3 hours
	Seminar in Environmental Resources (First 4 weeks of the summer session)	3 hours
	Computer Based Reference	3 hours
	Independent Study It may be possible that the TALINET students would like to take one or two credit hours in Independent Study relating to the community analysis study which they are doing in the community. This Independent Study could carry over and result in a continued Independent Study in the Fall Quarter, which would result in a document relating to the community analysis in their particular community.	
Fall Quarter	Seminar in Advanced Studies: Resources	3 hours
	Marketing of Library Services	3 hours
	Cognate Courses	4 hours
Interterm	Independent Study	2-3 hours

Winter Quarter	Seminar in Advanced Studies: Public Services	3 hours
	Seminar in Measurement and Evaluation of Library Services	3 hours
	Seminar on Networking	3 hours
	Indexing and Abstracting	3 hours
	Cognate Courses	4 hours
Spring Quarter	Cognate Courses	12-13 hours

MKG:mjp